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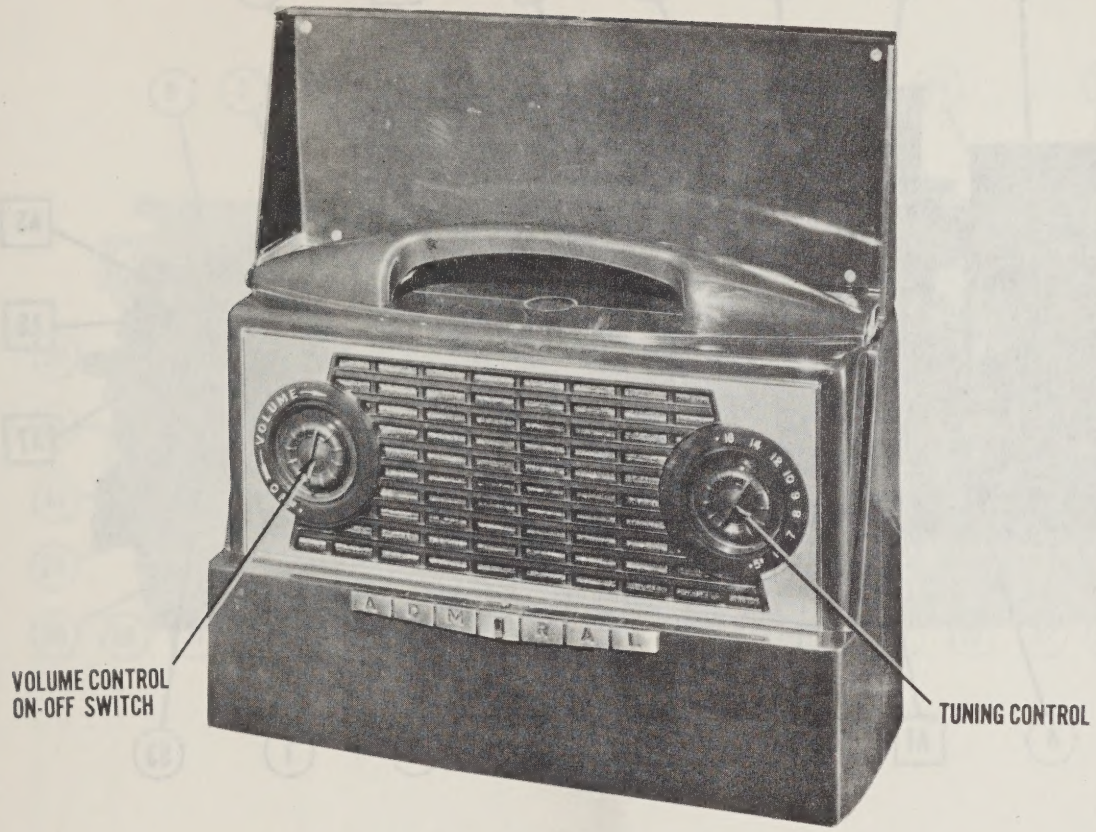
| TRADE NAME | MODEL | FOLDER NO. |
|---|---|---|
| Admiral | 6C11 (Ch. 6C1) | 491-1 |
| Aircastle | 604 | 491-2 |
| Airline | 64BR-7810A, 64BR-7820A | 491-3 |
| Airline | 84GDC-987A | 491-4 |
| Arvin | 253T, 254T, 255T, 256T (Ch. RE-252) | 491-5 |
| Astrasonic | 748 | 491-6 |
| Automatic | Tom Thumb Buddy | 491-7 |
| Concord | 315WL, 315WM | 491-8 |
| Crosley | 9-113, 9-114W | 491-9 |
| Crosley | 9-209, 9-212M | 491-10 |
| Firestone | 4-A-68 (Code No. 332-8-143653) | 491-11 |
| General Electric | 810 Television Receiver | 491-12 |
| Knight | 5F-525, 5F-526 | 491-13 |
| Masco | MA-50NR | 491-14 |
| Motorola | 58X11, 58X12 (Ch. HS-125) | 491-15 |
| Packard-Bell | 100 | 491-16 |
| Philco | 48-1000, 48-1001, 48-1050 Television Receiver | 491-17 |
| Philco | 49-505 | 491-18 |
| Philco | 49-1606, 49-1607 | 491-19 |
| RCA (Victor) | 8R71, 8R74, 8R75 (Ch. RC-1060), 8R72, 8R76 (Ch. RC-1060A) | 491-20 |
| Regal | 777 | 491-21 |
| Silvertone | 8003 (Ch. 132.818-1) | 491-22 |
| Sonora | 102 | 491-23 |
| Tele-Tone | 183 | 491-24 |
| Westinghouse | H-182 (Ch. V-2128), (Ch. V-2128-1) | 491-25 |
| Zenith | 6G801 (Ch. 6E40) | 491-26 |
| Zenith | 8G005YT(Z1), Ch. 8C40T(Z1); 8G005YT(Z2), Ch. 8C40T(Z2) | 491-27 |

ADMIRAL MODEL 6C11 (Ch. 6C1)
BATTERY-LINE OPERATED




ADMIRAL MODEL 6C11 (Ch. 6C1)
BATTERY-LINE OPERATED

ADMIRAL MODEL 6C11

| | |
|---|---|
| **TRADE NAME** | Admiral, Model 6C11 (Ch. 6C1) |
| **MANUFACTURER** | Admiral Corp., 3800 W. Cortland St., Chicago, Ill. |
| **TYPE SET** | Three Power Operated Portable Superheterodyne Receiver with loop Antenna |
| **TUBES** (FIVE) | Types, 1U4 RF Amp., 1R5 Converter, 1U4 IF Amp., 1U5 Det.-AVC-AF, 3U4 Power Output |
| POWER SUPPLY | 110-120 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply in Pack Form |
| RATING | .14 Amp. @ 117 Volts AC or 55MA @ 9 Volts DC and 16MA @ 90 Volts DC |
| **TUNING RANGE—BROADCAST** | 540-1620KC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to Pin 6 (grid) of 1R5. Low side to B-. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MMF. to reduce hum modulation. |
| 2 | .1 MFD. | " | 1620KC | " | " | A5 | Adjust for maximum output. |
| 3 | .1 MFD. | High side to large stator of tuning cap. Low side to B-. | 1400KC | Tune for maximum output. | " | A6 | Adjust for maximum output. Set pointer to 1400KC calibration mark on dial. Install chassis in cabinet. |
| 4 | | Loop | " | " | " | A7 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |

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# PARTS LIST AND DESCRIPTIONS



## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: ADMIRAL PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 1U4 | 1U4 | 6AR | |
| 2 | Converter | 1R5 | 1R5 | 7AT | |
| 3 | IF Amp. | 1U4 | 1U4 | 6AR | |
| 4 | 2nd Det.-AVC-AF | 1U5 | 1U5 | 6BW | |
| 5 | Power Output | 3V4 | 3V4 | 6BX | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: ADMIRAL PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 6A | 30 | 150 | 67C7-52 | AF888D | UP43215 | DY-403020-150 | EL-340 | ■ Filter |
| B | 40 | 150 | | | | | | ▲ " |
| C | 20 | 150 | | | | | | " |
| 7 | 100 | 25 | 67A4-6 | PRS25/100 | BRH251 | M-100-25 | UHC-102 | Fil. Bypass |
| 8 | .05 | 400 | 64B1-22 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Filter |
| 9A | .18 | 200 | 64A2-2 | 484-.2 | GT4P2 | ST-4-2 | 72P3 | Line Isolation |
| B | .1 | 400 | | 484-.1 | GT2P1 | ST-2-1 | 72P2 | Line Isolation-Note |
| 10 | .005 | 600 | 64B1-12 | 684-005 | GT6D5 | ST-6-005 | TC-25 | Audio Coupling |
| 11 | .005 | 600 | 64B1-12 | 684-005 | GT6D5 | ST-6-005 | TC-25 | " " |
| 12 | .05 | 200 | 64B1-32 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AF Screen Bypass |
| 13 | .05 | 200 | 64B1-32 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 14 | .25 | 200 | 64B1-28 | 484-.25 | GT2P25 | ST-2-25 | TC-2 | Fil. Bypass |
| 15 | 1000 | 500 | 65B6-41 | 1468-001 | 1W5D1 | MW.5-21 | 1FM-21 | Output Plate Byp.-Cer. |
| 16 | 100 | 500 | 65B6-3 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | AF Plate Bypass-Cer. |
| 17 | 250 | 500 | 65B6-5 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Diode RF Filter " |
| 18 | 1000 | 500 | 65B6-41 | 1468-001 | 1W5D1 | MW.5-21 | 1FM-21 | Osc. Decoupling " |
| 19 | 100 | 500 | 65B6-3 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Osc. Grid Cap. " |
| 20 | 250 | 300 | 65B6-5 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | RF Coupling " |
| 21 | 100 | 500 | 65B6-3 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 22 | 250 | 500 | 65B6-5 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | " " " |

Note-This item is used in Underwriters approved models only.

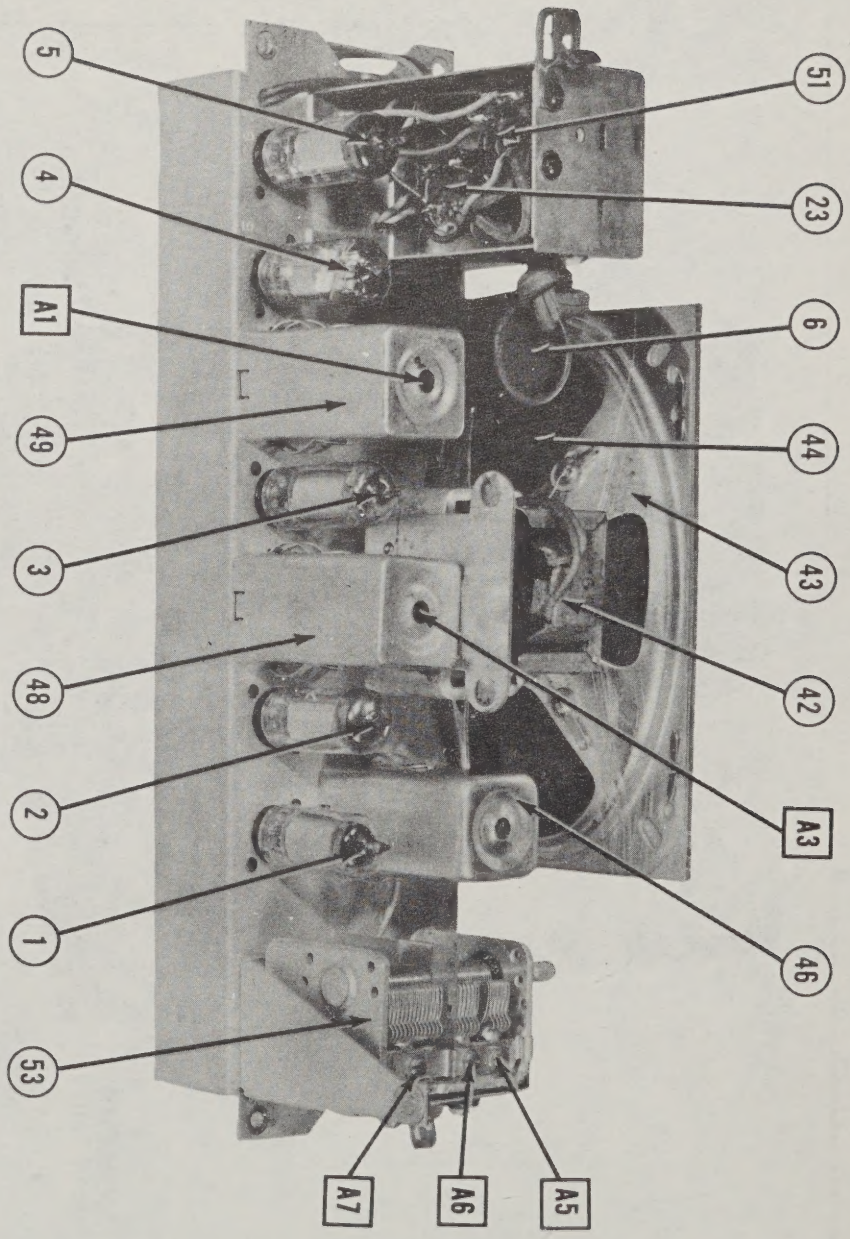
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: ADMIRAL PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 23A | 1 Meg. | ½ | 75B1-26 | D13-137 | AM-63-2 | Volume Control |
| B | Shaft | | Not Req. | E | KSS-3 | Attach to 23A per instructions |
| C | Switch | | " " | 42 | SW-A2 | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: ADMIRAL PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 24 | 2.2 Meg. | ½ | 60B27-225 | BTS-2.2 Meg. | Red-Red-Grn. RF Grid |
| 25 | 27KΩ | ½ | 60B26-273 | BTS-27K | Red-Vi.-Or. RF Plate Load |
| 26 | 1 Meg. | ½ | 60B27-105 | BTS-1 Meg. | Br.-Blk.-Grn. Converter Grid |
| 27 | 100KΩ | ½ | 60B27-104 | BTS-100K | Br.-Blk.-Yl. Oscillator Grid |
| 28 | 10KΩ | ½ | 60B26-103 | BTS-10K | Br.-Blk.-Or. Converter Screen Dropping-See Note 1 |
| 29 | 3.3 Meg. | ½ | 60B27-335 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 30 | 10 Meg. | ½ | 60B27-106 | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 31 | 4.7 Meg. | ½ | 60B27-475 | BTS-4.7 Meg. | Yl.-Vi.-Grn. AF Screen Dropping |
| 32 | 470KΩ | ½ | 60B27-474 | BTS-470K | Yl.-Vi.-Yl. AF Plate Load |
| 33 | 2.2 Meg. | ½ | 60B27-225 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 34 | 5.6 Meg. | ½ | 60B26-565 | BTS-5.6 Meg. | Grn.-Blue-Grn. Feedback |
| 35A | 1200Ω | 2.5 | 61A5-3 | AB-1250 | Filament Dropping |
| B | 1200Ω | | | AB-1250 | " " |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | ADMIRAL PART No. | IRC PART No. | |
| 36 | 1500Ω | ¼ | 60B26-152 | BTS-1500 | Br.-Grn.-Red Filament String |
| 37 | 820Ω | ¼ | 60B26-821 | BTS-820 | Gray-Red-Br. Filament String |
| 38 | 220Ω | ¼ | 60B26-221 | BW-½-220 | Red-Red-Br. Filament String |
| 39 | 150Ω | ½ | 60B26-151 | BW-½-150 | Br.-Grn.-Br. Filament String |
| 40 | 2700Ω | 1 | 60B14-272 | BTA-2700 | Red-Vi.-Red Filter |
| 41 | 47Ω | 1 | 60B14-470 | | Yl.-Vi.-Blk. Surge Limiter |

Note 1-Some models used 8200Ω in this application. Other models used two 18KΩ resistors in parallel.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | ADMIRAL PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 42 | 8200Ω | 3.5Ω | 480Ω | .8Ω | 98A21 | A-3878# | T22S47# | A-2931# | #Drill one new mounting hole. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | ADMIRAL PART No. | JENSEN PART No. | QUAM PART No. | |
| | FIELD | VC IMP. | | | | |
| 43 | PM | 3.5Ω | 78B38-1 | | 46A15 | |
| | CONE DIA. | VC DIA. | | | | |
| 44 | 4"x6" | 9/16" | | | | |

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | ADMIRAL PART No. | MEISSNER PART No. | |
| 45 | Loop Ant. | | 1.3Ω | 69B61 | | |
| 46 | RF Coil | | 10Ω | 69B58 | | |
| 47 | Osc. Coil | 2.5Ω | 10Ω | 69A57 | | |
| 48 | Input IF | 12Ω | 12Ω | 72B55 | 16-6666 | |
| 49 | Output IF | 12Ω | 12.5Ω | 72B56 | 16-6667 | |

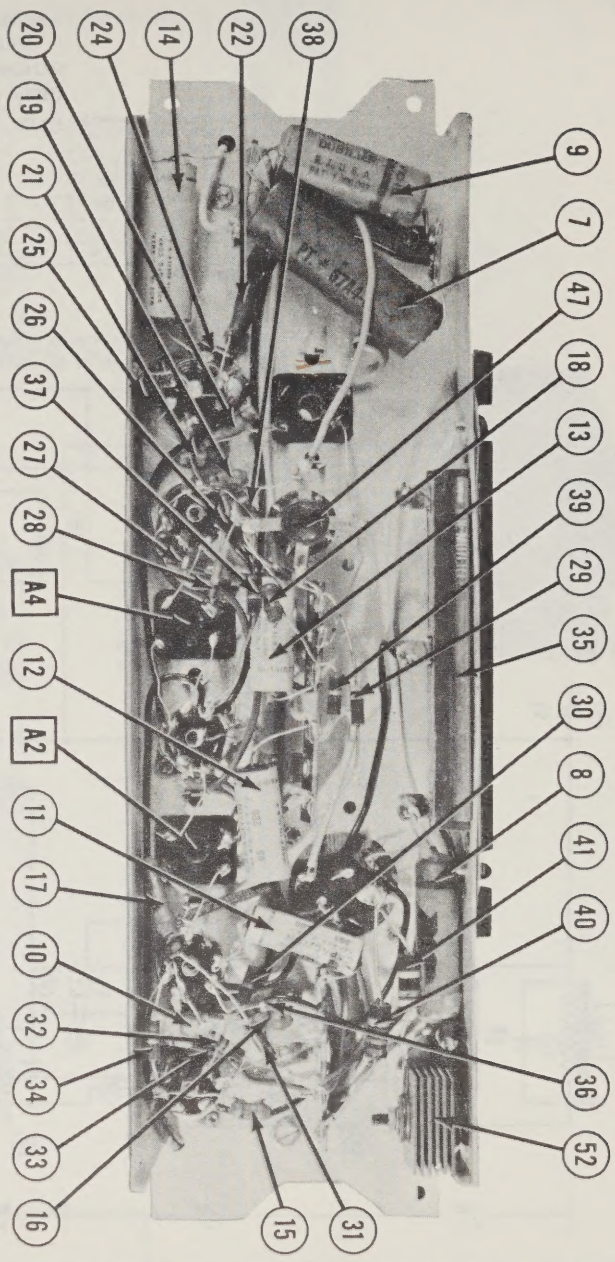
## BATTERIES

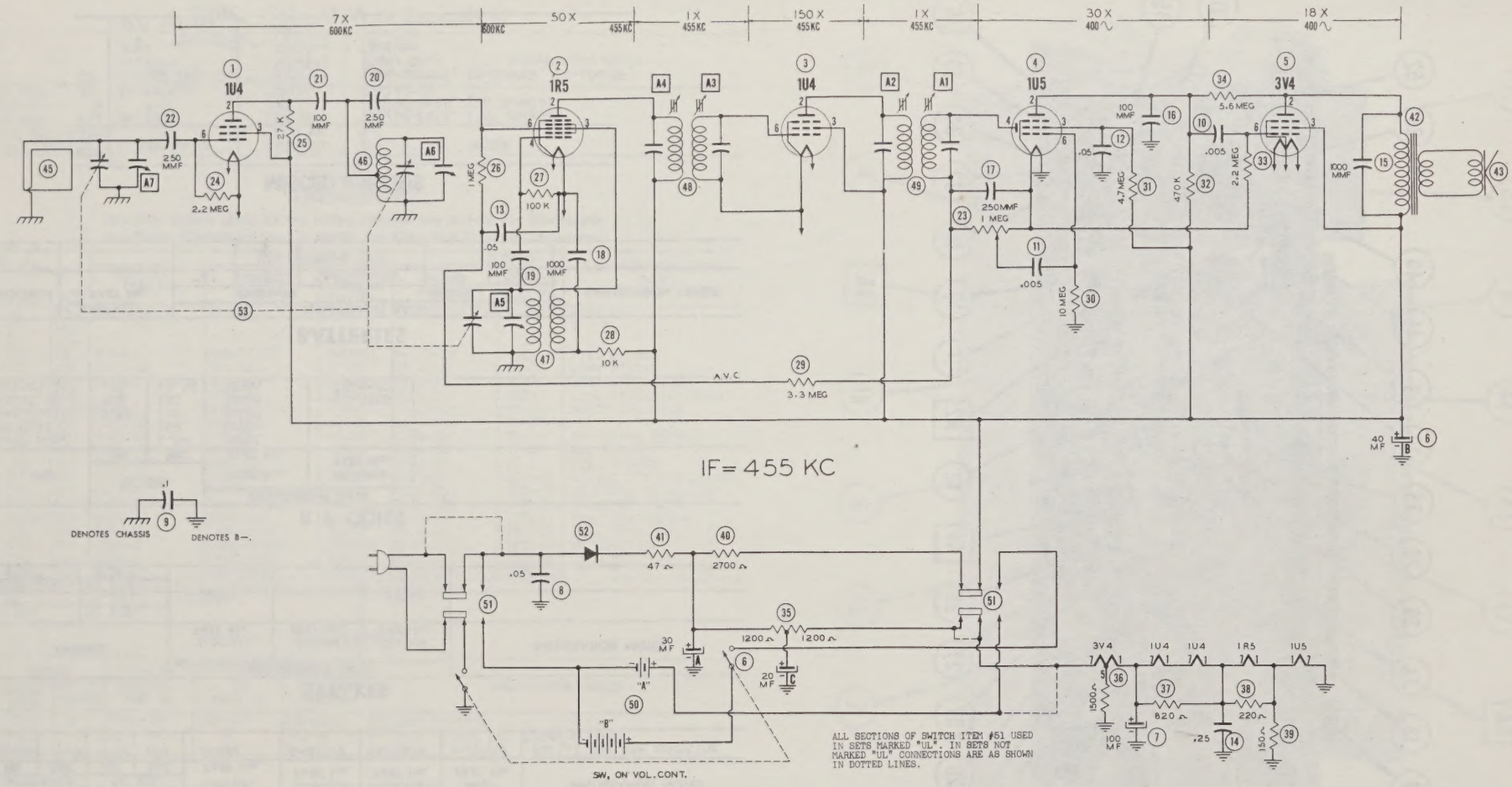
| ITEM No. | VOLTAGE | ADMIRAL PART No. | REPLACEMENT DATA | | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | EVEREADY | | | BURGESS | | | |
| | | | "A" | "B" | "A-B" | "A" | "B" | "A-B" | |
| 50 | 9V "A"<br>90V "B" | | | | #753 | | | F6A60 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | ADMIRAL PART No. | NOTES |
|---|---|---|---|
| 51A | Switch | 77A19-2 | AC/DC-Batt. ("N" Models) |
| B | " | 77A19-1 | AC/DC-Batt. (UL Models) |
| 52 | Rectifier | 93A1-4 | Selenium |
| 53 | 3 Gang Var. Cap | 68B10 | (24-432MMF, 18-214MMF, 14-104MMF) |
| | Cabinet | 34D21-1 | Body Only |
| | Knob | 33B35-1 | Volume |
| | " | 33B35-2 | Tuning |
| | Dial Pointer | 25A32 | |

# CHASSIS—BOTTOM VIEW






VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1U4 | 2.6VDC | 48VDC | 88VDC | 0V. | 2.6VDC | .2VDC | 4VDC |
| 2 | 1R5 | 1.2VDC | 88VDC | 62VDC | -8.3VDC§ | 1.2VDC | 0V. | 2.6VDC |
| 3 | 1U4 | 4VDC | 88VDC | 88VDC | 0V. | 4VDC | 4VDC | 5.2VDC |
| 4 | 1U5 | 1.2VDC | 32VDC | 12.5VDC | .2VDC | 1.2VDC | -.1VDC | 0V. |
| 5 | 3V4 | 5.2VDC | 8.4VDC | 88VDC | 0V. | 6.6VDC | .1VDC | 7.8VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1U4 | * | 34KΩ | 5KΩ | INF. | * | 2.2 Meg. | * |
| 2 | 1R5 | * | 5KΩ | 15KΩ | 100KΩ | * | 5.3 Meg. | * |
| 3 | 1U4 | * | 5KΩ | 5KΩ | INF. | * | * | * |
| 4 | 1U5 | * | 430KΩ | 4.7 Meg. | 1 Meg. | * | 10 Meg. | 0Ω |
| 5 | 3V4 | * | 5KΩ | 5KΩ | INF. | * | 2.2 Meg. | * |

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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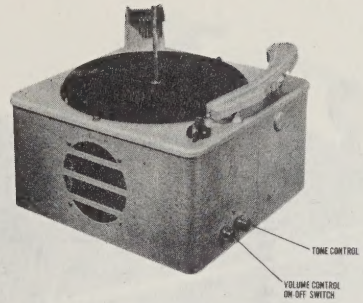
491-1

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to B-.

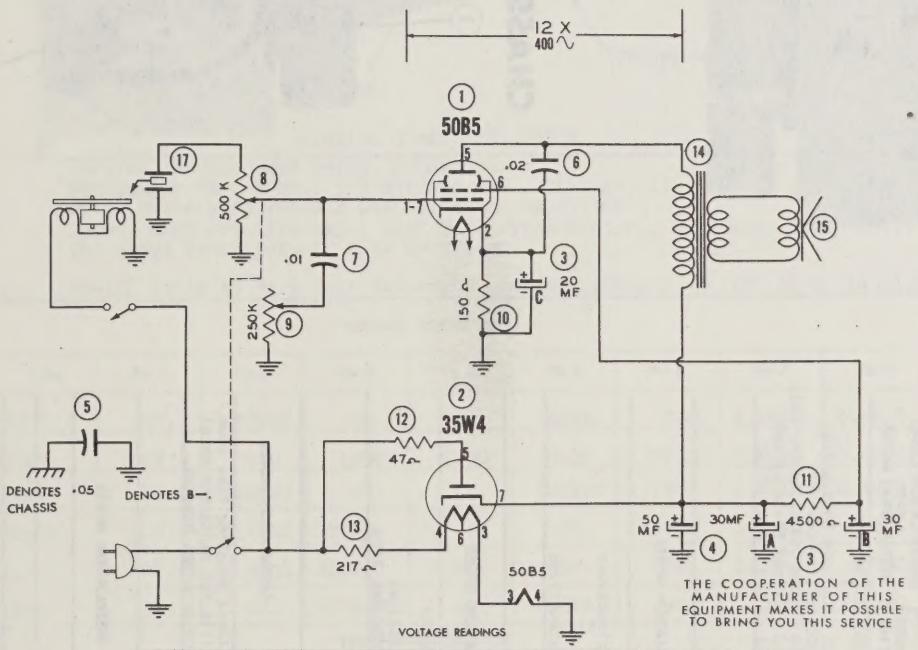
1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.




AIRCASTLE MODEL 604

| | |
|---|---|
| **TRADE NAME** | Aircastle, Model 604 |
| **SUPPLIER** | Spiegel, Inc., 1061 W. 35th St., Chicago, Ill. |
| **TYPE SET** | AC Operated Phono Player with 2 Tube Amplifier |
| **TUBES** (TWO) | Types, 50B5 Power Output, 35W4 Rectifier. |
| POWER SUPPLY | 110-120 Volts AC RATING .22 Amp. @ 117 Volts AC |

AIRCASTLE
MODEL 604




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 50B5 | 0V. | 6.8VDC | 55VAC | 0V. | 115VDC | 105VDC | 0V. |
| 2 | 35W4 | 100VDC | 0V. | 55VAC | 85VAC | 113VAC | 80VAC | 120VDC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 50B5 | 500KΩ | 150Ω | 52Ω | 0Ω | 60KΩ | 65KΩ | 500KΩ |
| 2 | 35W4 | 60KΩ | INF. | 52Ω | 90Ω | 50Ω | 80Ω | 60KΩ |

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, no signal applied for voltage measurements.

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# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: AIRCASTLE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Power Output | 5085 | 5085 | 7BZ | |
| 2 | Rectifier | 35W4 | 35W4 | 5BQ | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AIRCASTLE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 3A | 30 | 150 | | PRSA150/40302 | E2421 5C | DSB303 | TA-330 | Filter-Red |
| B | 30 | 150 | | | | | " " | " " |
| C | 20 | 25 | | | | | TA-25 | Cathode Bypass-Blue |
| 4 | 50 | 150 | | PRS150/50 | BR5015 | M-50-150 | UT-501 | Filter-See Note |
| 5 | .05 | 600 | | 684-05 | DT6S5 | ST-6-05 | TC-15 | Line Isolation-See Note |
| 6 | .02 | 600 | | 684-02 | DT6S2 | ST-6-02 | TC-12 | Output Plate Bypass |
| 7 | .01 | 600 | | 684-01 | DT6S1 | ST-6-01 | TC-11 | Tone Compensation |

Note-Not used in all models.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRCASTLE PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 8A | 500KΩ | ½ | 304609 | D13-133 | M-60-Z | Volume Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 8A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |
| 9A | 250KΩ | ½ | | D13-130 | M-64-Z | Tone Control |
| B | Shaft | | | A | Not Req. | Attach to 9A per instructions |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRCASTLE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 10 | 150Ω | 1 | | BW-1-150 | Br.-Grn.-Br. Output Cathode |
| 11 | 4500Ω | ½ | | BTS-4700 | Yl.-Grn.-Red Filter |
| 12 | 47Ω | ½ | | BW-½-47 | Yl.-Vi.-Blk. Rectifier Ballast |
| 13 | 217Ω | 10 | | ABA-250 | Line Dropping-See Note |

Note-On IRC replacement set slider 217Ω from one end.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: AIRCASTLE PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 14 | 1200Ω | 2.9Ω | 180Ω | .7Ω | | A-3865† | T22S45† | A-2928† | †Bend mounting tabs down, file out slots and mount on original bracket. |

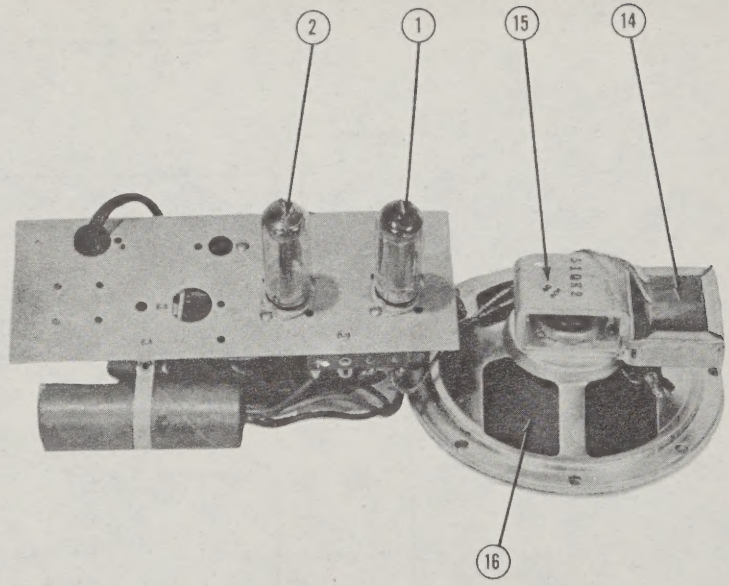
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: AIRCASTLE PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-105 | | |
| 15 | PM | 2.9Ω | | Mod. P5-X | 5A15 | |
| | CONE DIA. | VC DIA. | | | | |
| 16 | 4½" | 9/16" | | | | |

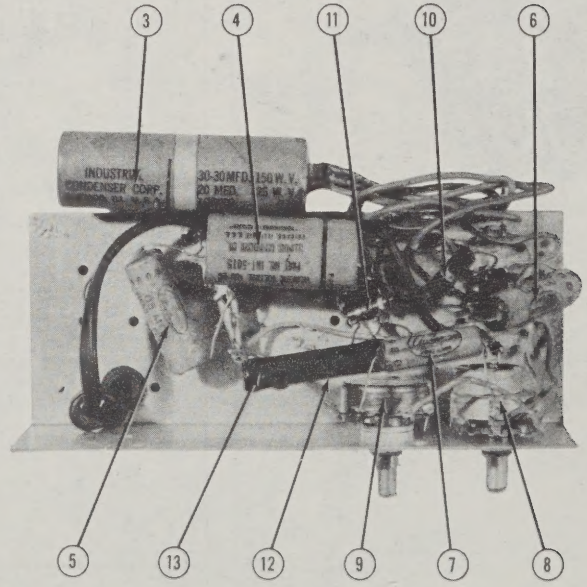
## PHONO CARTRIDGE

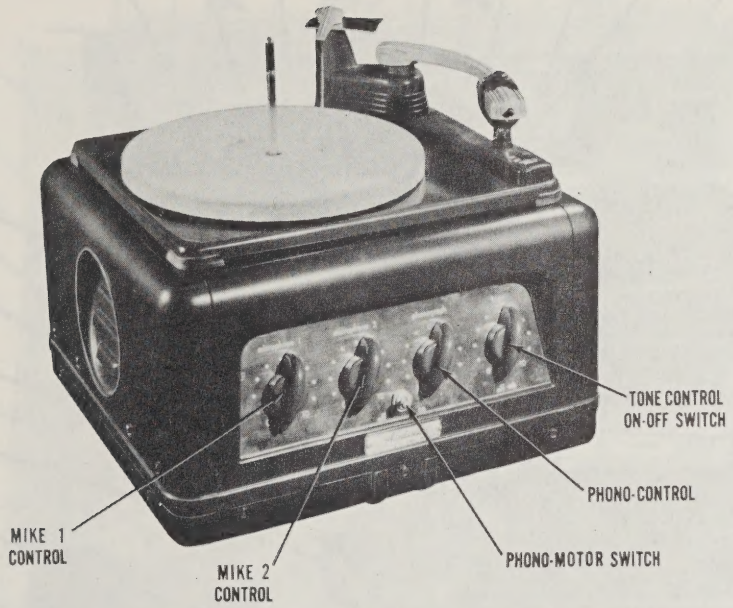
| ITEM No. | REPLACEMENT DATA: AIRCASTLE PART No. | ASTATIC PART No. | REMARKS |
|---|---|---|---|
| 17 | | L-82A | L-82A Original Part |

## CHASSIS—TOP VIEW




## CHASSIS—BOTTOM VIEW






AIRLINE MODEL 64BR-7820A

| | |
|---|---|
| TRADE NAME | Airline, Models 64BR-7810A, 64BR-7820A |
| SUPPLIER | Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill. |
| TYPE SET | AC or Battery Operated 3 Channel Audio Amplifier |
| TUBES (SIX) | Types, 6SC7 Mic. Pre-Amp., 6SQ7 Mixer-Tone Control, 6SC7 Amp.-Phase Inv., (2) 6L6GA Power Output, 0Z4A Rectifier |
| POWER SUPPLY | 105-125 Volts AC or 6 Volt Battery RATING .69 Amp. @ 117V AC or 14.2A @ 6V DC |

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SC7 | 0V. | 30VDC | 0V. | 0V. | 43VDC | .3VDC | 3.1VAC | 3.4VAC |
| 2 | 6SQ7 | 0V. | 0V. | 1VDC | 1VDC | 1VDC | 77VDC | 3.1VAC | 3.4VAC |
| 3 | 6SC7 | 0V. | 120VDC | 0V. | 0V. | 132VDC | 1.2VDC | 3.1VAC | 3.4VAC |
| 4 | 6L6GA | 0V. | 3.4VAC | 350VDC | 325VDC | 0V. | 155VDC | 3.1VAC | 27VDC |
| 5 | 6L6GA | 0V. | 3.4VAC | 350VDC | 325VDC | 0V. | 0V. | 3.1VAC | 27VDC |
| 6 | 0Z4A | 0V. | 0V. | 310VAC | 0V. | 310VAC | 0V. | 0V. | 360VDC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SC7 | 0Ω | 710KΩ | 2.2 Meg. | 2.2 Meg. | 710KΩ | 560Ω | 47Ω | 47Ω |
| 2 | 6SQ7 | 0Ω | 350KΩ | 4.7KΩ | 4.7KΩ | 4.7KΩ | 500KΩ | 47Ω | 47Ω |
| 3 | 6SC7 | 0Ω | 280KΩ | 480KΩ | 3.3KΩ | 280KΩ | 820Ω | 47Ω | 47Ω |
| 4 | 6L6GA | 0Ω | 47Ω | 120KΩ | 130KΩ | 100KΩ | 120KΩ | 47Ω | 250Ω |
| 5 | 6L6GA | 0Ω | 47Ω | 120KΩ | 130KΩ | 100KΩ | INF. | 47Ω | 250Ω |
| 6 | 0Z4A | 0Ω | 5Ω | 96Ω | INF. | 100Ω | INF. | INF. | 120KΩ |

NOTE-FILAMENT VOLTAGE ACROSS FILAMENT PINS 6.8V AC.

**RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS**

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

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AIRLINE MODELS
64BR-7810A, 64BR-7820A

AIRLINE MODELS
64BR-7810A, 64BR-7820A

# PARTS LIST AND DESCRIPTIONS

AIRLINE MODELS
64BR-7820A

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: AIRLINE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Mic. Pre-Amp. | 6SC7 | 6SC7 | 8S | |
| 2 | Mixer-Tone Cont. | 6SQ7 | 6SQ7 | 8Q | |
| 3 | Amp.-Phase Inv. | 6SC7 | 6SC7 | 8S | |
| 4 | Power Output | 6L6GA | 6L6GA | 7AC | |
| 5 | " | 6L6GA | 6L6GA | 7AC | |
| 6 | Rectifier | 0Z4A | 0Z4A | | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AIRLINE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 7A | 16 | 475 | A-8C-10856 | AF4J | UP2050 | DY-20-525 | EL-2 | Filter |
| 8A | 8 | 450 | A-8C-10858 | AF22J | UP1145 | DY-2x10-450 | EL-210 | " |
| B | 8 | 450 | | | | | | Decoupling |
| 9 | 8 | 450 | A-8C-10857 | AF2J | UP1045 | DY-10-450 | EL-1 | " |
| 10 | 10 | 50 | A-8C-11462 | PR850/10 | BR105 | M-10-50 | TA-510 | Output Cathode Bypass |
| 11 | 100 | 25 | A-8C-12572 | PRS25/100 | BRH251 | M-100-25 | UHC-102 | Mic. Amp. Cath. Byp. |
| 12 | 4 | 220 | A-8B-12071 | RR638 | CRA3040 | AMXR-2.2-4 | OP1205 | Phono Motor Bypass |
| 13 | .5 | 120 | A-8D-11881 | 484-.5 | GT2P5 | SHH-1 | 68P25 | Hash Filter |
| 14 | .07 | 2000 | A-8D-12190 | 2089-075 | | | | Buffer |
| 15 | .1 | 600 | C-8D-10983 | 684-.1 | GT6P1 | ST-6-1 | TC-1 | Audio Coupling |
| 16 | .1 | 600 | C-8D-10983 | 684-.1 | GT6P1 | ST-6-1 | TC-1 | " " |
| 17 | .05 | 600 | C-8D-10982 | 684-05 | GT6S5 | ST-6-05 | TC-15 | " " |
| 18 | .006 | 600 | C-8D-12243 | 684-006 | GT6D6 | ST-6-006 | TC-26 | Tone Compensation |
| 19 | .05 | 200 | C-8D-11012 | 484-05 | GT2S5 | ST-4-05 | TC-15 | " " |
| 20 | .05 | 600 | C-8D-10982 | 684-05 | GT6S5 | ST-6-05 | TC-15 | Audio Coupling |
| 21 | .05 | 600 | C-8D-10982 | 684-05 | GT6S5 | ST-6-05 | TC-15 | " " |

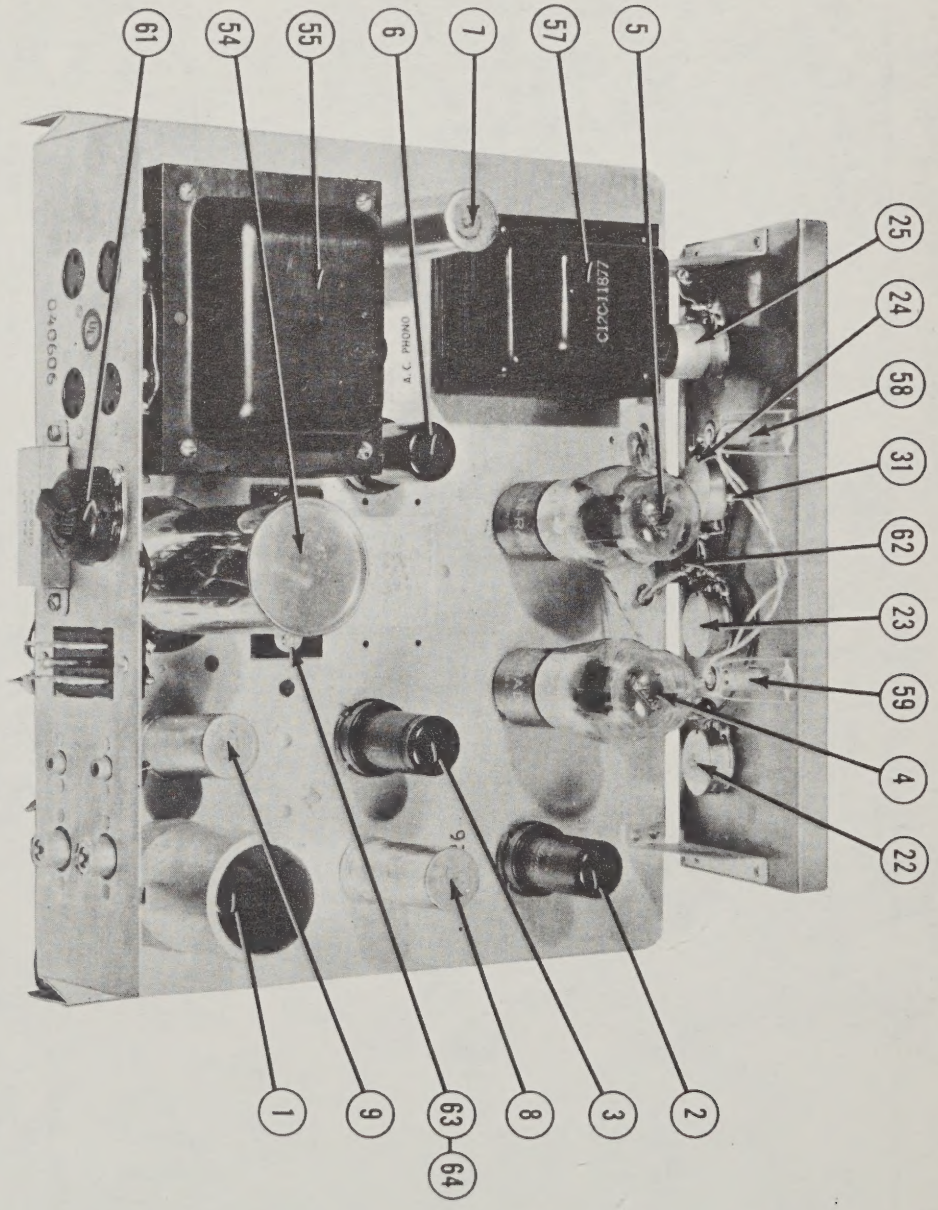
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 22A | 1 Meg. | ½ | A-10B-10846 | D13-137 | M-63-Z | Mike 1 Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 22A per instructions |
| 23A | 1 Meg. | ½ | A-10B-10846 | D13-137 | M-63-Z | Mike 2 Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 23A per instructions |
| 24 | 2 Meg. | ½ | A-10B-10847 | | | Phono Control |
| 25A | 1 Meg. | ½ | A-10B-11888 | D11-137 | M-61-S | Tone Control tapped @ 1 Meg. |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 25A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 26 | 2.2 Meg. | ½ | C-9B1-33 | BTS-2.2 Meg. | Red-Red-Grn. 1st Mic. Amp. Grid |
| 27 | 2.2 Meg. | ½ | C-9B1-33 | BTS-2.2 Meg. | Red-Red-Grn. 2nd Mic. Amp. Grid |
| 28 | 470KΩ | ½ | C-9B1-94 | BTS-470K | Yl.-V1.-Yl. 1st Mic. Amp. Plate Load |
| 29 | 470KΩ | ½ | C-9B1-94 | BTS-470K | Yl.-V1.-Yl. 2nd Mic. Amp. Plate Load |
| 30 | 560Ω | ½ | C-9B1-59 | BTS-560 | Grn.-Blue-Br. Mic. Amp. Cathode |
| 31 | 560KΩ | ½ | C-9B1-95 | BTS-560K | Grn.-Blue-Yl. Isolation |
| 32 | 100KΩ | ½ | C-9B1-86 | BTS-100K | Br.-Blk.-Yl. " |
| 33 | 100KΩ | ½ | C-9B1-86 | BTS-100K | Br.-Blk.-Yl. " |
| 34 | 4700Ω | ½ | C-9B1-70 | BTS-4700 | Yl.-V1.-Red Mixer Cathode |
| 35 | 270KΩ | ½ | C-9B1-91 | BTS-270K | Red-V1.-Yl. Mixer Plate Load |
| 36 | 5600Ω | ½ | C-9B1-71 | BTS-5600 | Grn.-Blue-Red Tone Compensation |
| 37 | 56KΩ | ½ | C-9B1-83 | BTS-56K | Grn.-Blue-Or. Decoupling |
| 38 | 56KΩ | ½ | C-9B1-83 | BTS-56K | Grn.-Blue-Or. " |
| 39 | 15KΩ | ½ | C-9B1-76 | BTS-15K | Br.-Grn.-Or. Feedback |
| 40 | 10KΩ | ½ | C-9B1-74 | BTS-10K | Br.-Blk.-Or. " |
| 41 | 470KΩ | ½ | C-9B1-94 | BTS-470K | Yl.-V1.-Yl. AF Grid |
| 42 | 820Ω | ½ | C-9B1-61 | BTS-820 | Gray-Red-Br. AF Cathode |
| 43 | 100KΩ | ½ | C-9B1-86 | BTS-100K | Br.-Blk.-Yl. AF Plate Load |
| 44 | 100KΩ | ½ | C-9B1-86 | BTS-100K | Br.-Blk.-Yl. Phase Inverter Plate Load |
| 45 | 3300Ω | ½ | C-9B1-171 | BTS-3300 | Or.-Or.-Red Phase Inverter Grid |
| 46 | 100KΩ | ½ | C-9B1-86 | BTS-100K | Br.-Blk.-Yl. Output Grid |
| 47 | 100KΩ | ½ | C-9B1-86 | BTS-100K | Br.-Blk.-Yl. " " |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | AIRLINE PART No. | IRC PART No. | |
| 48 | 250Ω | 5 | B-96-12247 | AB-250 | Output Cathode |
| 49 | 5600Ω | 2 | C-9B4-71 | BT-2-5600 | Grn.-Blue-Red Filter |
| 50 | 47Ω | ½ | C-9B1-46 | BW-½-47 | Yl.-Vi.-Blk. Hum Balance |
| 51 | 100Ω | ½ | C-9B1-50 | BW-½-100 | Br.-Blk.-Br. Hash Suppression |
| 52 | 100Ω | ½ | C-9B1-50 | BW-½-100 | Br.-Blk.-Br. " " |
| 53 | 125Ω | 10 | B-9C-12248 | DHA-150 | Series Phono Motor-See Note |

Note-On IRC replacement set slider at 125Ω from one end.

## VIBRATOR

| ITEM No. | TYPE | INPUT VOLTS | FREQUENCY | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | | AIRLINE PART No. | RADIART PART No. | |
| 54 | Interrupter | 6.1 VDC | 60 ∿ | B-21B-11878 | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | AIRLINE PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. |
| 55 | 117V AC @ .69A 6.1V DC 6.8A | 620V CT @ .1ADC 720V CT .095ADC | 6.3V AC @ 2.9A | | C-12A-11677 | | | |

## FILAMENT CHOKE

| ITEM NO. | RATINGS | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D.C. RESISTANCE | INDUCTANCE (0 CURRENT 1000 ∿) | AIRLINE PART NO. | STANCOR PART NO. | THORDARSON PART NO. | MERIT PART No. | |
| 56 | 2.9 Amps | .024Ω | 750 Microhenries | B-16B-11875 | | | | |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | AIRLINE PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 57 | 8500Ω CT | 2Ω<br>2.7Ω<br>4Ω<br>8Ω<br>500Ω | 270Ω CT | .16Ω<br>.18Ω<br>.22Ω<br>.3Ω<br>18.7Ω | C-12C-11877 | | | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | AIRLINE PART No. | | |
| 58 | Bayonet | 6-8 | 0.15 | Brown | B-46A-10793 | | Type #47 |
| 59 | " | " | " | " | " | | " |

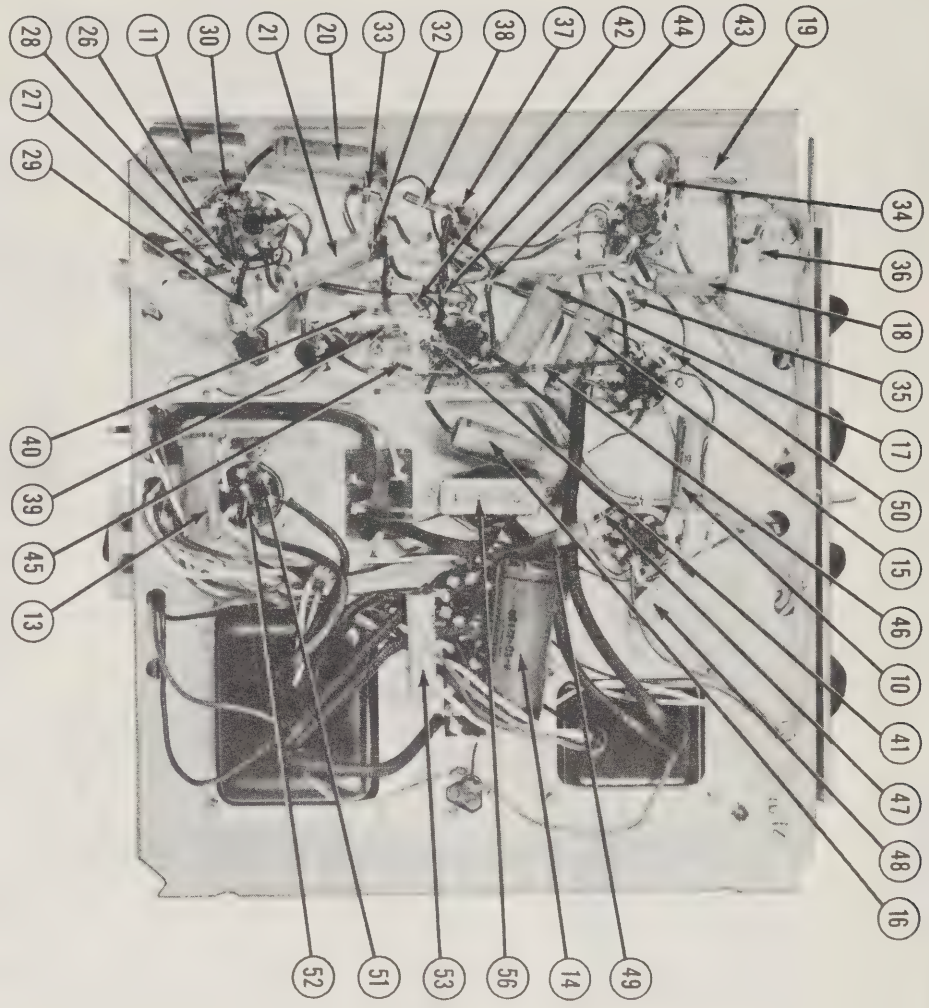
## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|
| | AIRLINE PART No. | ASTATIC PART No. | |
| 60 | BE3K-12065 | L-70-S | |

## MISCELLANEOUS

| ITEM No. | PART NAME | AIRLINE PART No. | NOTES |
|---|---|---|---|
| 61 | Switch | A-20H-10852 | Speaker Selector |
| 62 | " | A-20C-11868 | On-Off |
| 63 | Fuse | A-46B-2717 | 2 Amp. 3AG |
| 64 | " | A-46B-12064 | 20 Amp. 3AG |
| | Knob | A-5B-10842-52 | |

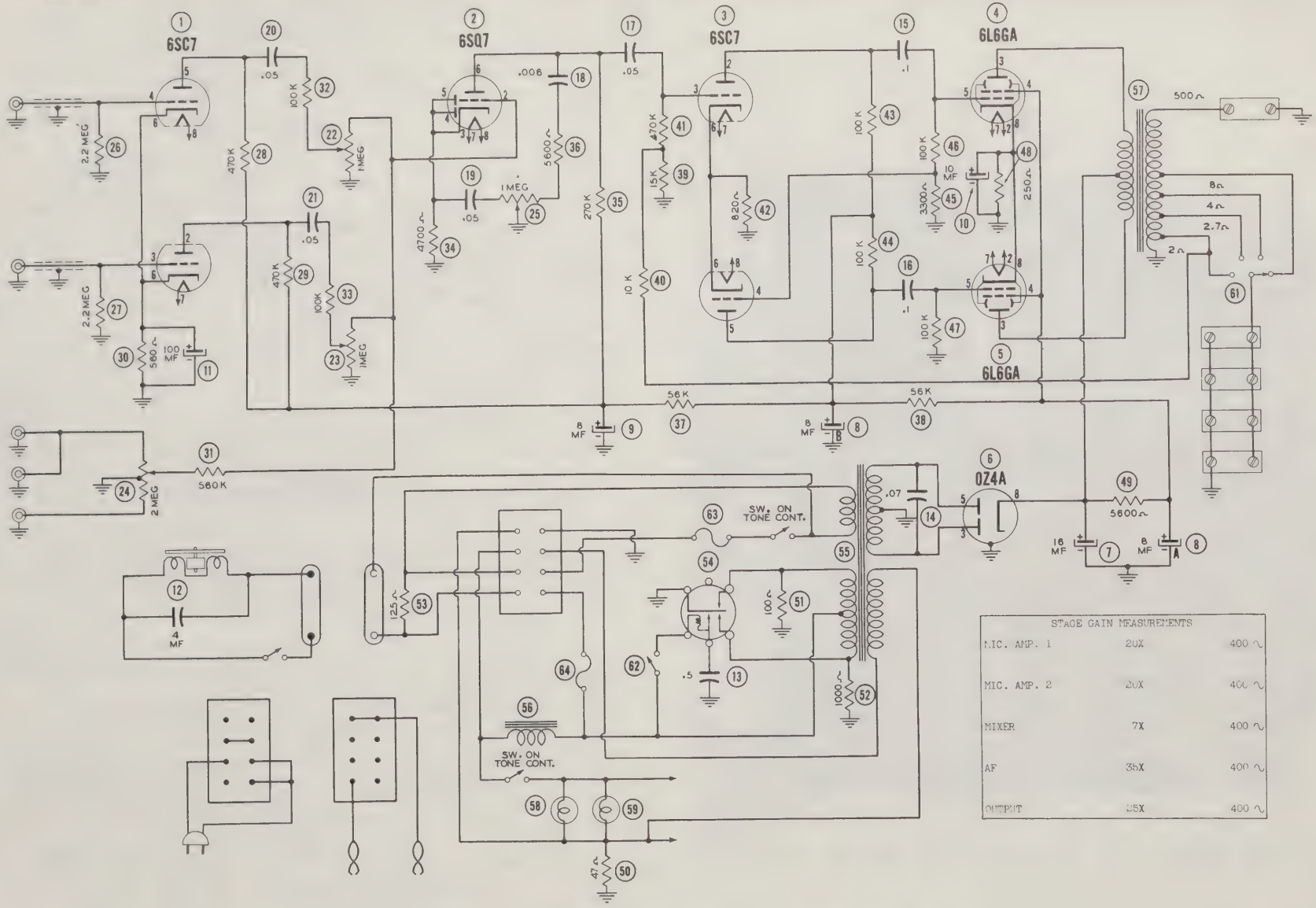
# CHASSIS—BOTTOM VIEW








AIRLINE MODELS 64BR-7820A

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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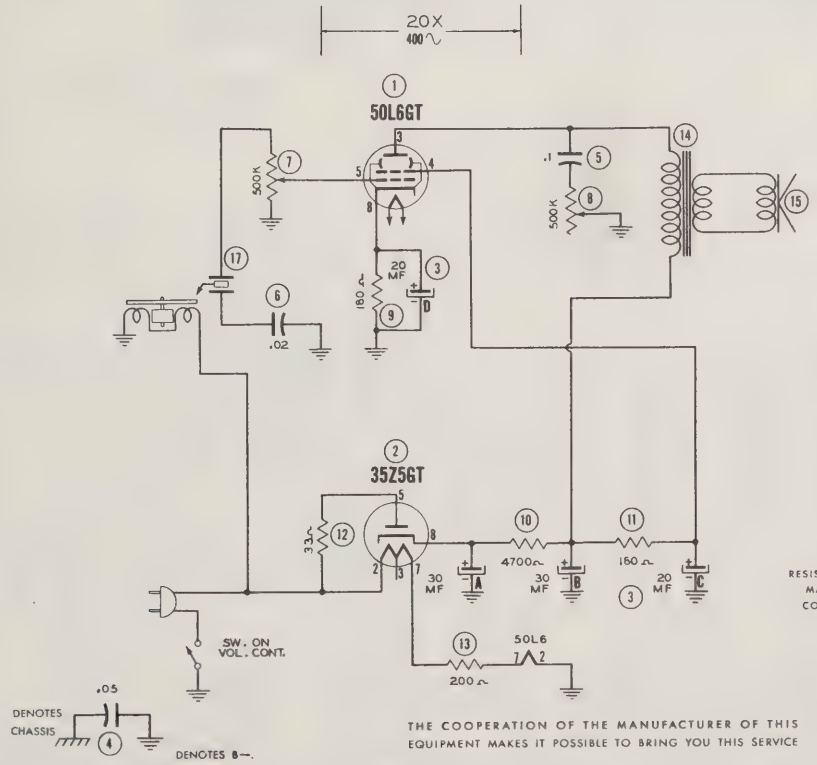
AIRLINE MODEL 84GDC-987A

| | |
|---|---|
| TRADE NAME | Airline, Model 84GDC-987A |
| SUPPLIER | Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill. |
| TYPE SET | AC Operated Phono Player with 2 Tube Amplifier |
| TUBES (TWO) | Types, 50L6GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 110-120 Volts AC RATING .22 Amp. @ 117 Volts AC |




| Pin No. | 50L6 Volt. | Res. |
|---|---|---|
| 1 | 0V. | INF. |
| 2 | 0V. | 0Ω |
| 3 | 117VDC | 70KΩ |
| 4 | 113VDC | 75KΩ |
| 5 | 0V. | 500KΩ |
| 6 | 0V. | INF. |
| 7 | 50VAC | 5Ω |
| 8 | 8VDC | 180Ω |

| Pin No. | 35Z5 Volt. | Res. |
|---|---|---|
| 1 | 0V. | INF. |
| 2 | 117VAC | 300Ω |
| 3 | 112VAC | 275Ω |
| 4 | 0V. | INF. |
| 5 | 114VAC | 333Ω |
| 6 | 0V. | INF. |
| 7 | 85VAC | 250Ω |
| 8 | 133VDC | 70KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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491-4

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume controls at minimum, no signal applied for voltage measurements.

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# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: AIRLINE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 2 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AIRLINE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 3A | 30 | 150 | ECA-233-2 | AF886D4A | UP44315C | DY-401 | EL-434 | ◓ Filter |
| B | 30 | 150 | | | | | | ■ " |
| C | 20 | 150 | | | | | | ▲ " |
| D | 20 | 25 | | | | | | Output Cathode Byp. |
| 4 | .05 | 400 | CA405 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Isolation |
| 5 | .1 | 400 | CA41 | 484-.1 | GT4P1 | ST-4-1 | TC-1 | Tone Compensation |
| 6 | .02 | 400 | CA402 | 484-02 | GT4S2 | ST-4-02 | TC-12 | Phono Isolation |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 7A | 500KΩ | ½ | RS-500 | D13-133 | AM-60-Z | Volume Control |
| B | Shaft | | Not Req. | E | KSS-3 | Attach to 7A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |
| 8A | 500KΩ | ½ | R-500 | D13-133 | AM-60-Z | Tone Control |
| B | Shaft | | Not Req. | F | KSS-3 | Attach to 8A per instructions |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 9 | 180Ω | ½ | R1805 | BW-½-180 | Br.-Gray-Br. Output Cathode |
| 10 | 4700Ω | ½ | R47005 | BTS-4700 | Yl.-Vi.-Red Filter |
| 11 | 180Ω | ½ | R1805 | BW-½-180 | Br.-Gray-Br. " |
| 12 | 33Ω | ½ | R335 | BW-½-33 | Or.-Or.-Blk. Rectifier Ballast |
| 13 | 200Ω | 10 | R200100 | AB-200 | Line Dropping |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: AIRLINE PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 14 | 2000Ω | 3.4Ω | 176Ω | .55Ω | Part of C535 | A-3876# | T22S45# | A-2928# | #Bend mounting tabs down, file out slots and mount on original bracket. |

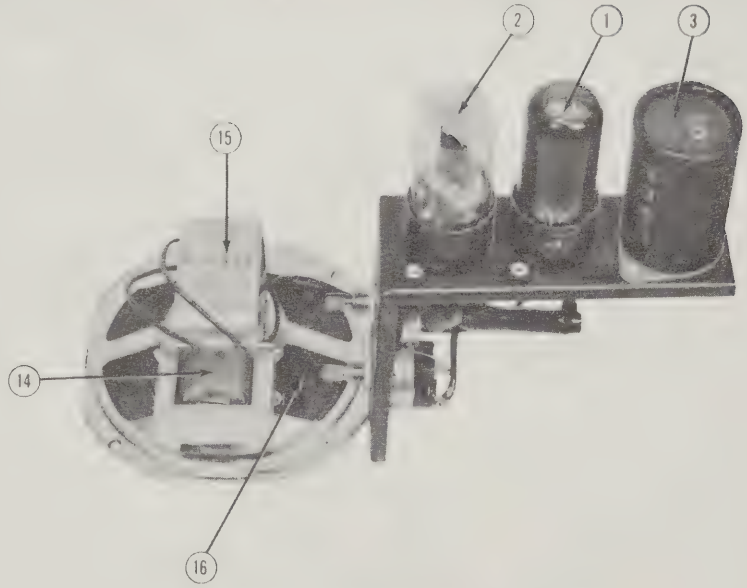
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: AIRLINE PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-107 | | †Trim flange |
| 15 | PM | 3.4Ω | C535 | Mod. P5-V | 5A15† | |
| | CONE DIA. | VC DIA. | | | | |
| 16 | 4½" | 9/16" | | | | |

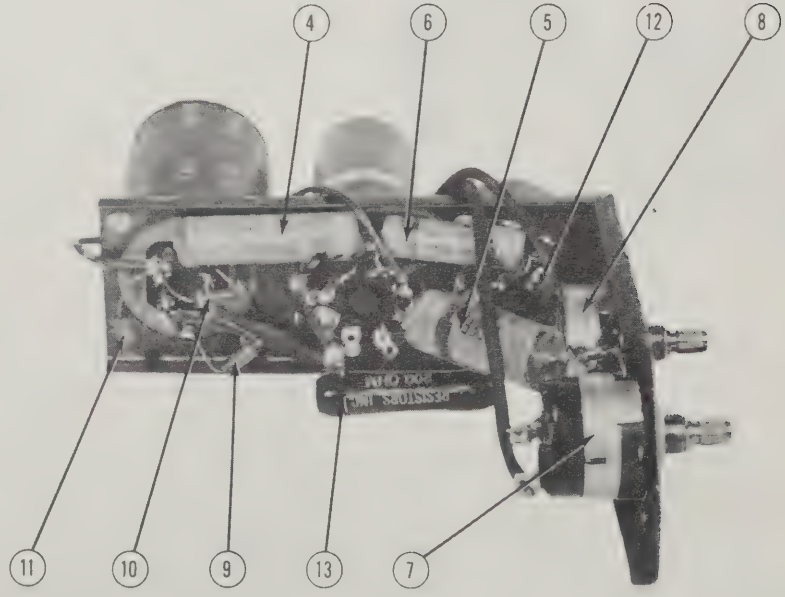
## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA: AIRLINE PART No. | ASTATIC PART No. | REMARKS |
|---|---|---|---|
| 17 | PA350 | L-72 | |

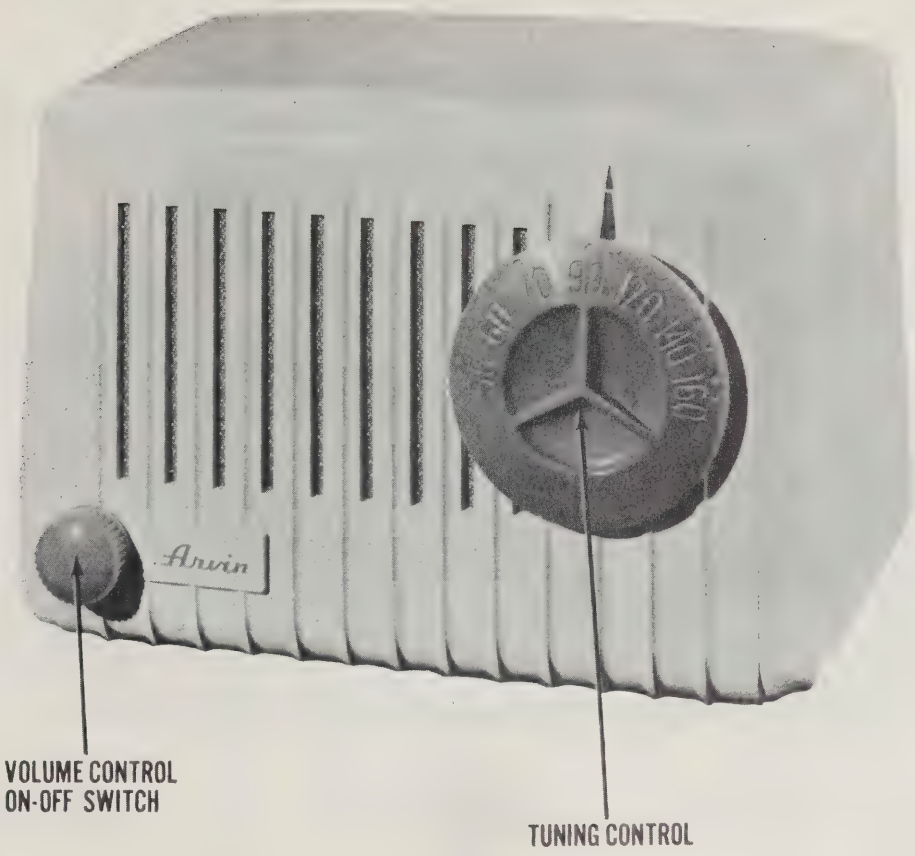
## CHASSIS—TOP VIEW




## CHASSIS—BOTTOM VIEW



ARVIN MODELS 253T, 254T, 255T, 256T (Ch. RE-252)




ARVIN MODELS 253T, 254T, 255T, 256T (Ch. RE-252)

ARVIN MODEL 255T

| | |
|---|---|
| **TRADE NAME** | Arvin, Models 253T, 254T, 255T, 256T (Ch. RE-252) |
| **MANUFACTURER** | Noblitt-Sparks Industries, Columbus, Indiana |
| **TYPE SET** | AC-DC Operated Superheterodyne Receiver with Loop Antenna |
| **TUBES** (FIVE) | Types, 12SK7 IF Amp., 12SA7 Converter, 12SA7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| **POWER SUPPLY** | 105-125 Volts AC-DC |
| **TUNING RANGE—BROADCAST** | 540-1600KC RATING .26 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .05 MFD. | High side to Pin 8 (grid) of 12SA7. Low side to chassis. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 2 | | Loop | 1620KC | " | " | A3 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3 | | " | 1400KC | Tune for maximum output. | " | A4 | Rock tuning cap. and adjust for maximum output. |
| 4 | | " | 1000KC | " | " | | Bend rotor plates of ant. section of tuning cap. for maximum output. |
| 5 | | " | 600KC | " | " | | Bend rotor plates of ant. section of tuning cap. for maximum output. Repeat steps 2 thru 5 until no further improvement can be made. |

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DATE 1/49-#491-5 SET #53-FOLDER #5

# PARTS LIST AND DESCRIPTIONS

ARVIN MODEL 255T

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | ARVIN PART No. | STANDARD REPLACEMENT | | |
| 1 | RF Amp. | 12SK7 | 12SK7 | 8N | |
| 2 | Converter | 12SA7 | 12SA7 | 8R | |
| 3 | 2nd Det.-AVC-AF | 12SQ7 | 12SQ7 | 8Q | |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | ARVIN PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | |
| 6A | 40 | 150 | A22015 | PRSA-40302 | EDL4215C | DSB-303 | TA-305 | Filter-Red |
| B | 20 | 150 | | | | | | " -Blue |
| C | 20 | 25 | | | | | | Cathode Bypass-Green |
| 7 | 20 | 150 | | PRS150/20 | BR2015 | M-20-150 | UT-201 | Filter-See Note |
| 8 | .05 | 400 | C20068-503 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Filter |
| 9 | .01 | 400 | C20068-103 | 484-01 | GT4S1 | ST-4-01 | TC-11 | Output Plate Bypass |
| 10 | .005 | 600 | C20069-502 | 684-005 | GT6D5 | ST-6-005 | TC-25 | Audio Coupling |
| 11 | .01 | 400 | C20068-103 | 484-01 | GT4S1 | ST-4-01 | TC-11 | " " |
| 12 | .05 | 200 | C20067-503 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 13 | 220 | 300 | C20226-221 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | AF Plate Bypass-Cer. |
| 14 | 220 | 300 | C20226-221 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Diode RF Filter " |
| 15 | 50 | 300 | A21643 | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | Osc. Grid Cap. " |
| 16 | 220 | 300 | C20226-221 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | RF Coupling " |
| 17 | 1000 | 300 | C20226-102 | 1468-001 | 1W5D1 | MO.3-21 | 1FM-21 | Ext. Ant. Isol " |

Note-Not used in all models.

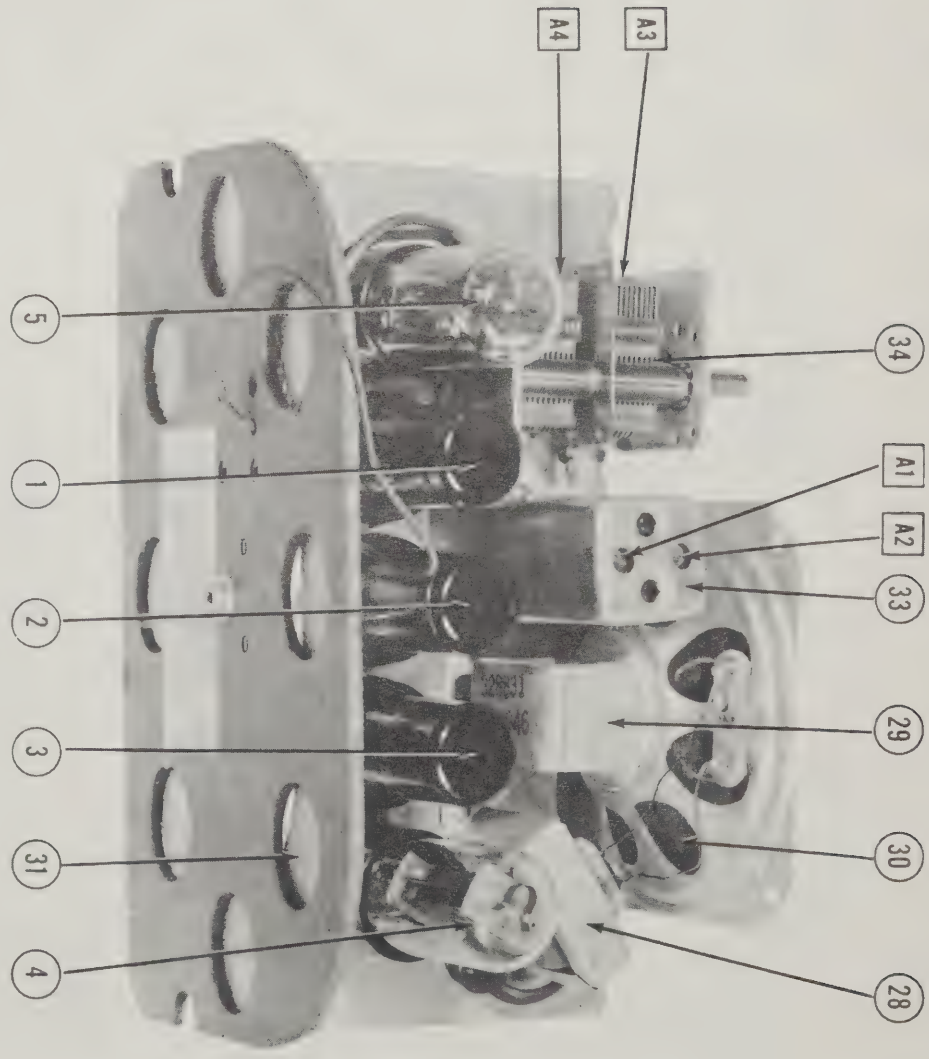
## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | ARVIN PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 18A | 2 Meg. | ½ | C21947 | D13-139 | M-66-Z | Volume Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 18A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | ARVIN PART No. | IRC PART No. | |
| 19 | 4700Ω | ½ | C20060-472 | BTS-4700 | Yl.-Vl.-Red RF Plate Load |
| 20 | 22KΩ | ½ | C20060-223 | BTS-22K | Red-Red-Or. Osc. Grid |
| 21 | 470KΩ | ½ | C20060-474 | BTS-470K | Yl.-Vl.-Yl. Conv. Grid |
| 22 | 4.7 Meg. | ½ | C20060-475 | BTS-4.7 Meg. | Yl.-Vl.-Yl. AVC Network |
| 23 | 10 Meg. | ½ | C20060-106 | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 24 | 470KΩ | ½ | C20060-474 | BTS-470K | Yl.-Vl.-Yl. AF Plate Load |
| 25 | 1 Meg. | ½ | C20060-105 | BTS-1 Meg. | Br.-Blk.-Grn. Output Grid |
| 26 | 150Ω | ½ | C20060-151 | BW-½-150 | Br.-Grn.-Br. Output Cathode |
| 27 | 1200Ω | 1 | C20070-122 | BTA-1200 | Br.-Red-Red Filter |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | ARVIN PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 28 | 2000Ω | 3.4Ω | 107Ω tapped @ 5.7Ω | .3Ω | AC22014-1 | A-3330 | | A-3031 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | ARVIN PART No. | JENSEN PART No. | QUAM PART No. | |
| 29 | FIELD<br>PM | VC IMP.<br>3.4Ω | C-21946 | ST-113<br>Mod. P4-X | 4A07 | |
| 30 | CONE DIA.<br>4" | VC DIA.<br>9/16" | | | | |

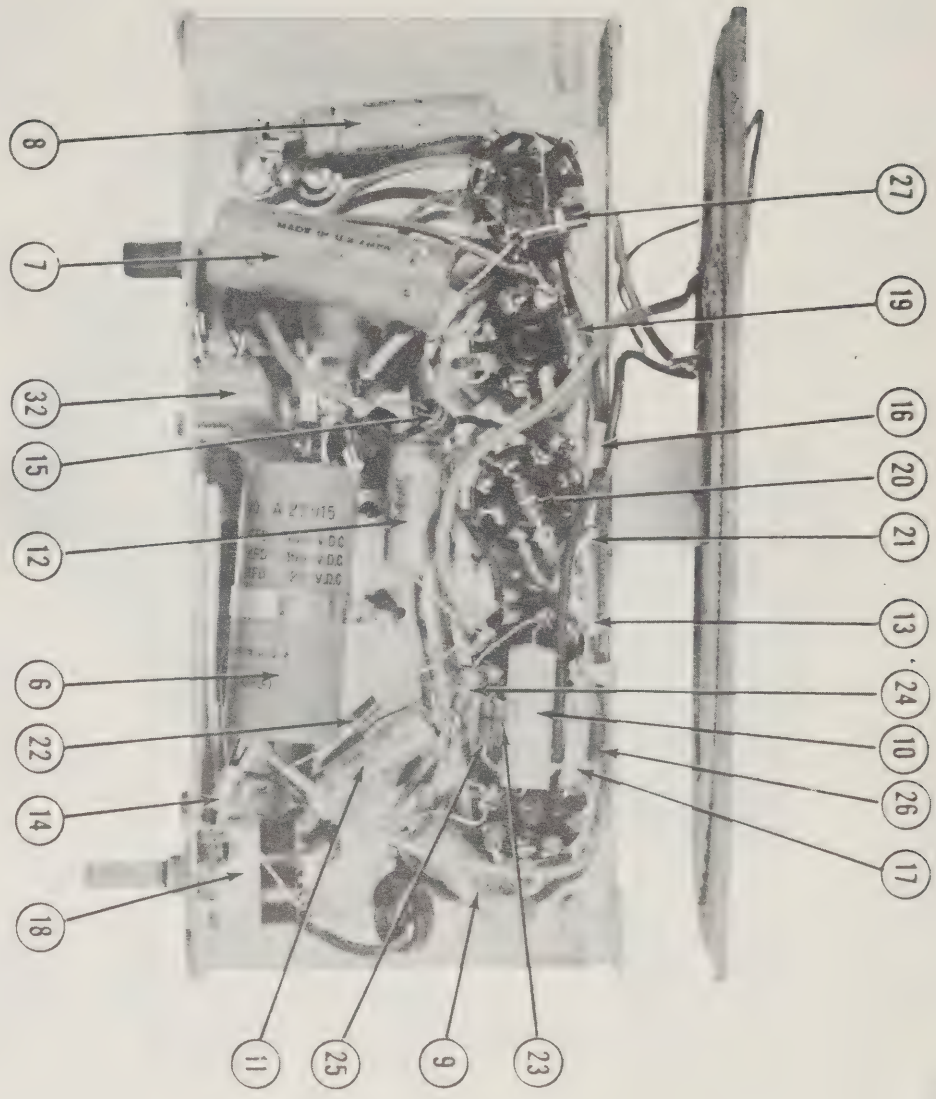
## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | ARVIN PART No. | MEISSNER PART No. | |
| 31 | Loop Ant. | 0Ω | 1Ω | AC21998-1 | | |
| 32 | Osc. Coil | .8Ω | 6Ω | AC22024 | 14-1060 | |
| 33 | IF Trans. | 16Ω | 16Ω | AC21999-1 | | |

## MISCELLANEOUS

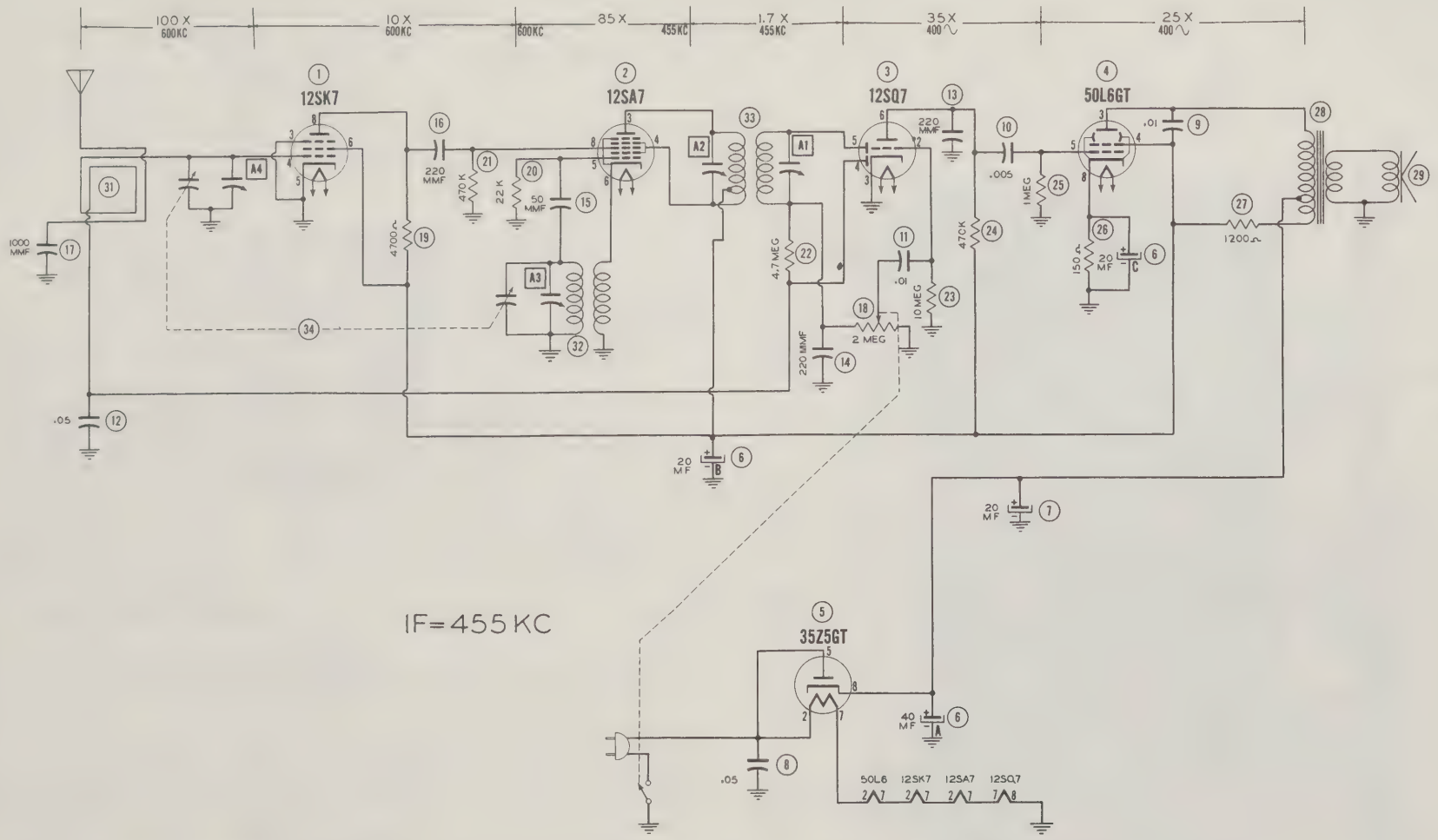
| ITEM No. | PART NAME | ARVIN PART No. | NOTES |
|---|---|---|---|
| 34 | 2 Gang Var. Cap. | C21948 | (22-384MMF, 34-178MMF) |
| | Cabinet | AA22114-1 | Model 254T |
| | " | AA22114-2 | Model 255T |
| | " | AA22114-3 | Model 256T |
| | " | AA22114-4 | Model 253T |
| | Knob (Volume) | A21993-1 | Model 254T |
| | " " | A21993-2 | Model 255T |
| | " " | A21993-3 | Model 256T |
| | " " | A21993-4 | Model 253T |
| | " (Tuning) | A22115-1 | Model 254T |
| | " " | A22115-2 | Model 255T |
| | " " | A22115-3 | Model 256T |
| | " " | A22115-4 | Model 253T |

# CHASSIS—BOTTOM VIEW






ARVIN MODEL 255T




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SK7 | 0V. | 37VAC | 0V. | -.5VDC | 0V. | 100VDC | 25VAC | 50VDC |
| 2 | 12SA7 | 0V. | 25VAC | 100VDC | 100VDC | -6.8VDC§ | 0V. | 12VAC | -.1VDC |
| 3 | 12SQ7 | 0V. | -.6VDC | 0V. | -.6VDC | -.3VDC | 55VDC | 12VAC | 0V. |
| 4 | 50L6GT | 117VAC | 85VAC | 130VDC | 100VDC | 0V. | 100VDC | 32VAC | 7.7VDC |
| 5 | 35Z5GT | 0V. | 117VAC | 115VAC | 135VDC | 117VAC | 100VDC | 85VAC | 135VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SK7 | 0Ω | 36Ω | 0Ω | 7 Meg. | 0Ω | 75KΩ | 24Ω | 80KΩ |
| 2 | 12SA7 | 0Ω | 24Ω | 75KΩ | 75KΩ | 22KΩ | .8Ω | 12Ω | 7 Meg. |
| 3 | 12SQ7 | 0Ω | 10 Meg. | 0Ω | 6.7 Meg. | 2 Meg. | 550KΩ | 12Ω | 0Ω |
| 4 | 50L6GT | 140Ω | 85Ω | 75KΩ | 75KΩ | 1 Meg. | 75KΩ | 36Ω | 150Ω |
| 5 | 35Z5GT | INF. | 140Ω | 120Ω | 75KΩ | 140Ω | 75KΩ | 85Ω | 75KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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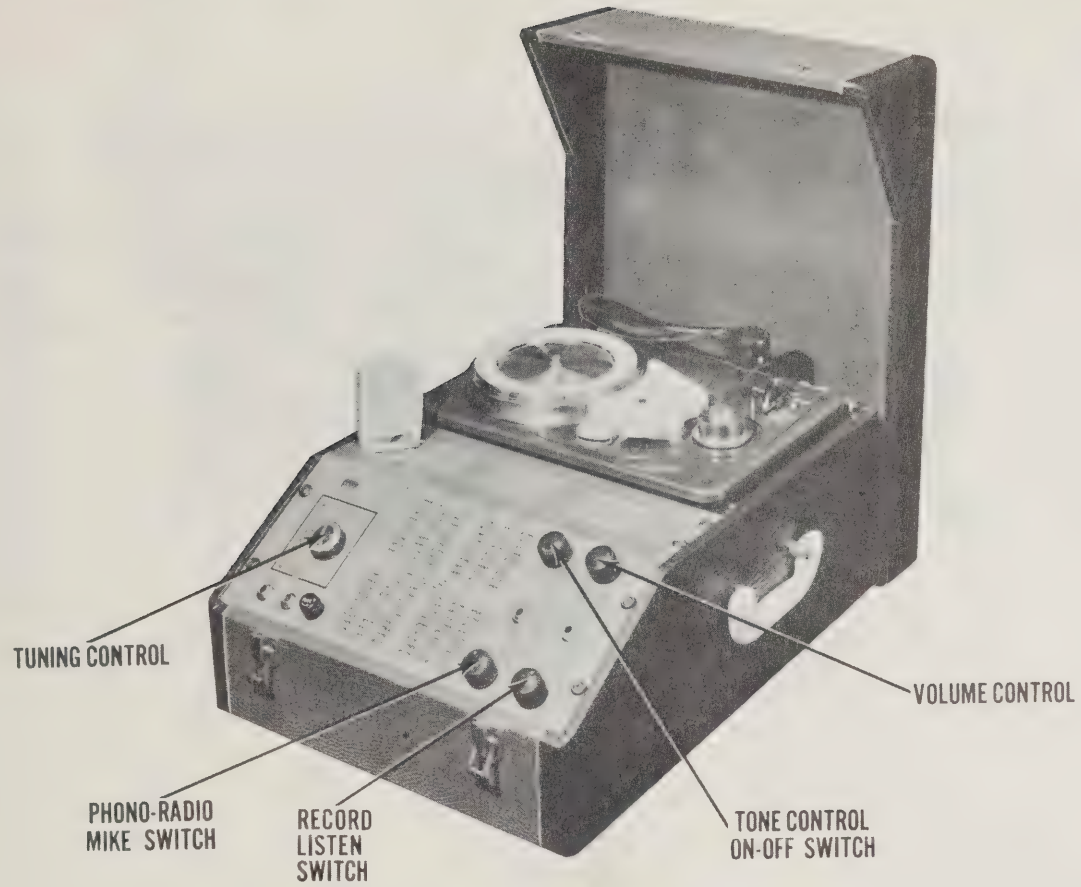
491-5

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ASTRA-SONIC
MODEL 748




ASTRA-SONIC
MODEL 748

ASTRA-SONIC MODEL 748

| | |
|---|---|
| TRADE NAME | Astra-Sonic, Model 748 |
| MANUFACTURER | The Pentron Corporation, 611 W. Division St., Chicago 10, Ill. |
| TYPE SET | AC Operated Combination Phono-Radio-Wire Recorder, Superheterodyne Rec. with with Loop Antenna |
| TUBES (SEVEN) | Types, 6BE6 Converter, 6BA6 IF Amp., 6AT6 Det.-AVC-AF, 6SJ7 Pre-Amp., 6C4 Recorder Amp., 6V6GT Bias Osc.-Power Output, 6X4 Rectifier. |
| POWER SUPPLY | 110-120 Volts AC |
| TUNING RANGE—BROADCAST | 540-1620KC RATING .45 Amp. @ 117 Volts AC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to Pin 7 (grid) of 6BE6. Low side to chassis. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. |
| 2 | | Loop | 1620KC | " | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. |
| 3 | | " | 1400KC | Tune for maximum output. | " | A6 | Adjust for maximum output. |

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DATE 1/49-#491-6 Set#53-FOLDER #6

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: ASTRA-SONIC PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 6BE6 | 6BE6 | 7CH | |
| 2 | IF Amp. | 6BA6 | 6BA6 | 7BK | |
| 3 | Det.-AVC-1st AF | 6AT6 | 6AT6 | 7BT | |
| 4 | Pre-Amp. | 6SJ7 | 6SJ7 | 6N | |
| 5 | Record Amp. | 6C4 | 6C4 | 6BG | |
| 6 | Bias Osc.-Power Output | 6V6GT | 6V6GT | 7AC | |
| 7 | Rectifier | 6X4 | 6X4 | 4BS | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

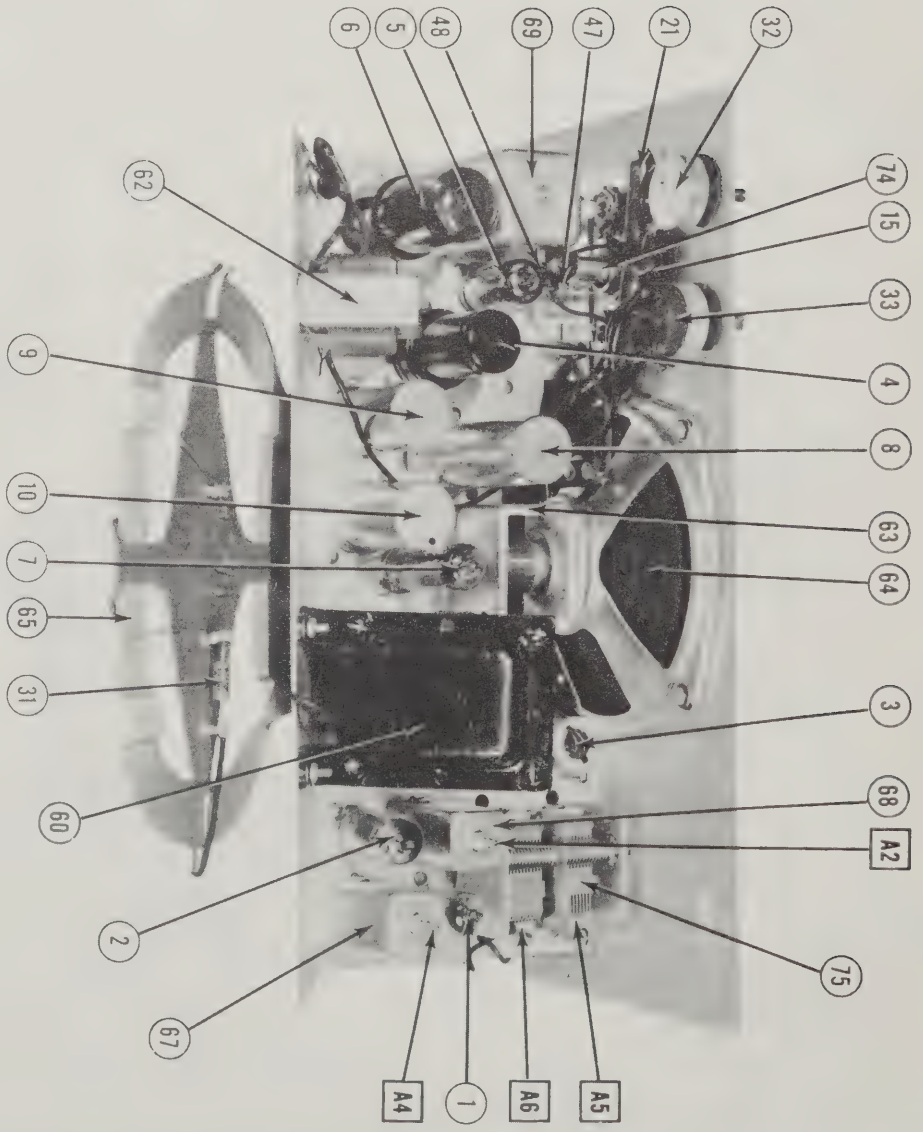
| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: ASTRA-SONIC PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 8A | 30 | 350 | 748-12 | AF22K44‡ | UP2215 | DY-30-350 | EL-323‡ | Filter |
| B | 30 | 350 | | | | LM-30-450 | " | " |
| 9A | 10 | 350 | 748-11 | AF22J | UP1145 | DY-2x10-450 | EL-210 | Decoupling |
| B | 10 | 350 | | | | | " | " |
| 10A | 20 | 25 | 748-10 | AF44D | UP2215 | DY-2x20-25 | EL-221 | Cathode Bypass |
| B | 20 | 25 | | | | | " | " |
| 11 | .1 | 500 | | 689-.1 | TVC6P1 | XXT-6-.1 | PX-16 | Line Filter |
| 12 | .1 | 500 | | 638-.1 | TVC6P1 | XXT-6-.1 | PX-16 | " " |
| 13 | .02 | 400 | | 484-02 | GT4S2 | ST-4-02 | TC-12 | Audio Coupling-Note 1 |
| 14 | .01 | 400 | | 484-01 | GT4S1 | ST-4-01 | TC-11 | Indicator Coupling |
| 15 | .02 | 400 | | 484-02 | GT4S2 | ST-4-02 | TC-12 | Tone Compensation |
| 16 | .1 | 400 | | 484-.1 | GT4P1 | ST-4-1 | TC-1 | Audio Coupling |
| 17 | .02 | 100 | | 484-02 | GT2S2 | ST-4-02 | TC-12 | " " |
| 18 | .1 | 400 | | 484-.1 | GT4P1 | ST-4-1 | TC-1 | Pre-Amp. Screen Bypass |
| 19 | .01 | 400 | | 484-01 | GT4S1 | ST-4-01 | TC-11 | Audio Coupling |
| 20 | .01 | 400 | | 484-01 | GT4S1 | ST-4-01 | TC-11 | " " |
| 21 | .01 | 400 | | 484-01 | GT4S1 | ST-4-01 | TC-11 | " " |
| 22 | .05 | 200 | | 484-05 | GT2S5 | ST-4-05 | TC-15 | IF Screen Bypass |
| 23 | .05 | 200 | | 484-05 | GT2S5 | ST-4-05 | TC-15 | Conv. Screen Bypass |
| 24 | .05 | 200 | | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 25 | 1000 | 300 | | 1468-001 | 1W5D1 | MO.3-21 | 1FM-21 | Bias Osc. Feedback-Note 2 |
| 26 | 1000 | 300 | | 1468-001 | 1W5D1 | MO.3-21 | 1FM-21 | Bias Osc. Grid Cap. " " |
| 27 | 1000 | 300 | | 1468-001 | 1W5D1 | MO.3-21 | 1FM-21 | Tone Comp. |
| 28 | 500 | 300 | | 1468-0005 | 5W5T5 | MO.5-35 | 1FM-35 | AF Plate Bypass-Cer. |
| 29 | 150 | 500 | | 1468-00015 | 5W5T15 | MO.5-315 | 1FM-315 | Diode RF Filter |
| 30 | 50 | 300 | | 1468-00005 | 5W5C5 | MO.5-45 | 1FM-45 | Osc. Grid Cap.-Cer. |
| 31 | 3.3 | 300 | | 1468-00005 | 5W5V5 | MO.5-55 | MS-55 | Ext. Ant. Coupling-Cer. |

Note 1-Some models may use .01 MFD in this application.
Note 2-Some models may use 3000 MMFD in this application.
‡Omit bypass section.
*Parallel sections to obtain desired capacity.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: ASTRA-SONIC PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 32A | 500KΩ | ½ | 748-8 | D13-133 | M-60-Z | Volume Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 32A per instructions |
| 33A | 50KΩ | ½ | 748-9 | D13-123 | M-46-Z | Tone Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 33A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | ASTRA-SONIC PART No. | IRC PART No. | |
| 34 | .[illegible]KΩ | ½ | | BTS-22K | Red-Red-Or. Oscillator Grid |
| 35 | 10KΩ | 1 | | BTA-10K | Br.-Blk.-Or. Converter Screen Dropping |
| 36 | [illegible] Meg. | ½ | | BTS-[illegible] Meg. | Red-Red-Grn. AVC Network |
| 37 | 1[illegible]Ω | ½ | | BW-½-100 | Br.-Blk.-Br. IF Cathode |
| 38 | 1[illegible]KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. IF Screen Dropping |
| 39 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Diode Load |
| 40 | 8.2 Meg. | ½ | | BTS-8.2 Meg. | Gray-Red-Grn. AF Grid |
| 41 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. AF Plate Load |
| 42 | [illegible]KΩ | ½ | | BTS-220K | Red-Red-Yl. Series Phono-Note 3 |
| 43 | [illegible] Meg. | ½ | | BTS-[illegible] Meg. | Gray-Red-Grn. Pre-Amp. Grid |
| 44 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. Pre-Amp. Screen Dropping |
| 45 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Pre-Amp. Plate Load |
| 46 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Volume Indicator Network |
| 47 | 220KΩ | ½ | | BTS-220K | Red-Red-Yl. " " " |
| 48 | [illegible]KΩ | ½ | | BTS-220K | Red-Blk.-Yl. " " " |
| 49 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. " " " |
| 50 | 1500Ω | 1 | | BTA-1500 | Br.-Grn.-Red Recording Amp. Cathode |
| 51 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Recording Amp. Grid |
| 52 | 47KΩ | 1 | | BTA-47K | Yl.-Vi.-Or. Recording Amp. Plate Load |
| 53 | [illegible]Ω | 1 | | BW-1-270 | Red-Vi.-Br. Output Cathode |
| 54 | 220KΩ | ½ | | BTS-220K | Red-Red-Yl. Output Grid |
| 55 | 4700Ω | ½ | | BTS-4700 | Yl.-Vi.-Red Tone Compensation |
| 56 | 4700Ω | 2 | | BTS-4700 | Yl.-Vi.-Red Filter |
| 57 | 4700Ω | 2 | | BT-2-4700 | Yl.-Vi.-Red " |
| 58 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Bias Oscillator Grid |
| 59 | 1[illegible]KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Tone Compensation |

Note 3-Not used in all models.

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | ASTRA-SONIC PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. |
| 60 | 117V AC @ .45A | 560V CT @ .065A DC | 6.4V CT @ 2.3A | | 748-66 | P-6011# | T22R02# | P-3048# |

#Mount vertical with universal mounting brackets.

## FILTER CHOKE

| ITEM NO. | RATINGS | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D. C. RESISTANCE | INDUCTANCE (0 CURRENT 1000 ~) | ASTRA-SONIC PART NO. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | |
| 61 | .068A DC | 260Ω | 7.5 Henries | 748-3 | C-1709 | T20C53 | C-2081** | **Drill one new mounting hole. |

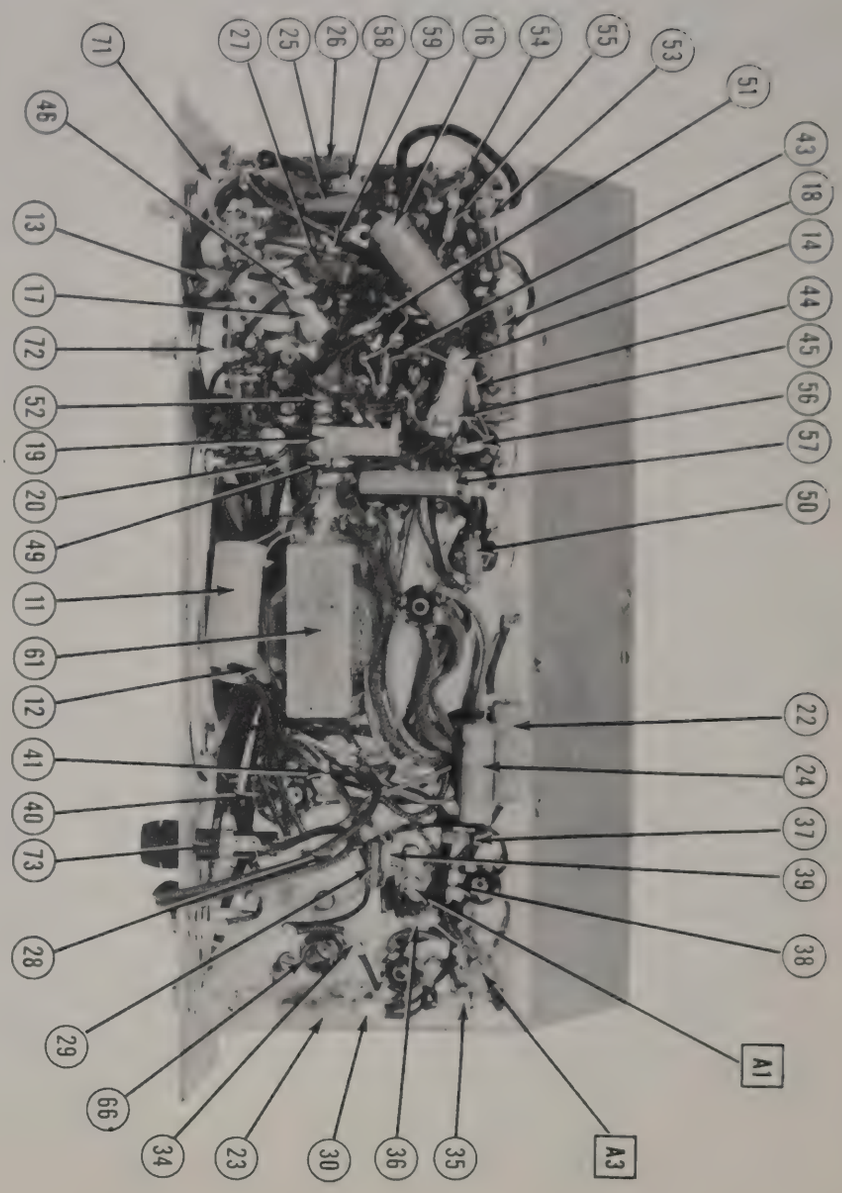
## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | ASTRA-SONIC PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 62 | 3600Ω | 3.0Ω | 250Ω | .32 | 748-67 | A-3823 | T22S37 | A-2901 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | ASTRA-SONIC PART No. | JENSEN PART No. | QUAM PART No. | |
| 63 | PM | 3.0Ω | 748-59 | ST-107† Mod. P5-V | 52A1 | †Use adaptor baffle. |
| | CONE DIA. | VC DIA. | | | | |
| 64 | 5-1/8" | 9/16" | | | | |

# CHASSIS—BOTTOM VIEW




# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | ASTRA-SONIC PART No. | MEISSNER PART No. | |
| 65 | Loop Ant. | | 1Ω | 748-1 | | |
| 66 | Osc. Coil | | 5Ω | 748-6 | 14-1060 | |
| 67 | Input IF | 13Ω | 13.2Ω | 748-4 | 16-6678 | |
| 68 | Output IF | 12.8Ω | 13Ω | 748-5 | 16-6678 | |
| 69 | Bias Osc. Coil | .1Ω | 7Ω | 748-7 | | |

## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|
| | ASTRA-SONIC PART No. | ASTATIC PART No. | |
| 70 | 748-A2 | L-70-A | L-70 Original |

## MISCELLANEOUS

| ITEM No. | PART NAME | ASTRA-SONIC PART No. | NOTES |
|---|---|---|---|
| 71 | Switch | 748-71 | Record-Listen |
| 72 | " | 748-72 | Radio-Phono- Mic. |
| 73 | Fuse | | 1.5 Amp. |
| 74 | Indicator | | Neon |
| 75 | 2 Gang Var. Cap. | 748-23 | (24-446MMF, 30-192MMF) |
| | Contact | 748-[illegible] | |
| | Mike Plug | 748-34 | |
| | Timing Meter | 748-[illegible] | |

DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove eight Phillips head screws holding metal cover and chassis. Remove metal cover.
3. Disconnect recording plug from recording head. Remove phono pick-up plug from chassis and disconnect phono motor leads.
4. Disconnect loop antenna leads at loop.
5. Remove chassis.

SERVICE NOTES

VOLTAGE AND RESISTANCE READINGS TAKEN IN RECORD RADIO POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | [illegible] | [illegible] | 0V. | 3.2VAC | 3.2VAC | 195VDC | 100VDC | 0V. | - |
| 2 | [illegible] | [illegible] | 0V. | 3.2VAC | 3.2VAC | 195VDC | 55VDC | .6VDC | - |
| 3 | [illegible] | [illegible] | 0V. | 3.2VAC | 3.2VAC | -.7VDC | -.6VDC | 90VDC | - |
| 4 | [illegible] | 0V. | 3.2VAC | 0V. | -.6VDC | 0V. | 20VDC | 3.2VAC | 2 5VDC |
| 5 | 6C4 | [illegible] | 0V. | 3.2VAC | 3.2VAC | 125VDC | 0V. | 5VDC | - |
| 6§ | 6V6GT | 0V. | 3.2VAC | 250VDC | 260VDC | -2.6VDC§ | 0V. | 3.2VAC | 14VDC |
| 6§ | [illegible] | 0V. | 3.2VAC | 260VDC | 270VDC | 0V. | 0V. | 3.2VAC | 14VDC |
| 7 | [illegible] | [illegible] | 0V. | 3.2VAC | 3.2VAC | 0V. | 250VAC | 250VDC | - |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | [illegible] | [illegible] | 1Ω | .05Ω | .05Ω | 160KΩ | 170KΩ | 2.7 Meg. | - |
| 2 | [illegible] | 2.7 Meg. | 0Ω | .05Ω | .05Ω | 170KΩ | 300KΩ | 100Ω | - |
| 3 | [illegible] | 1 Meg. | 0Ω | .05Ω | .05Ω | 470KΩ | 470KΩ | 300KΩ | - |
| 4 | [illegible] | [illegible] | .05Ω | 0Ω | 10 Meg. | 0Ω | 2.2 Meg. | .05Ω | 800KΩ |
| 5 | 6C4 | 170KΩ | INF. | .05Ω | .05Ω | 170KΩ | 470KΩ | 1.5KΩ | - |
| 6# | [illegible] | [illegible] | [illegible] | .05Ω | 120KΩ | 120KΩ | 70KΩ | INF. | .05Ω | 270Ω |
| 6# | [illegible] | [illegible] | [illegible] | .05Ω | [illegible] | [illegible] | 220KΩ | INF. | .05Ω | 270Ω |
| 7 | [illegible] | [illegible] | INF. | .05Ω | .05Ω | INF. | 210Ω | 120KΩ | - |

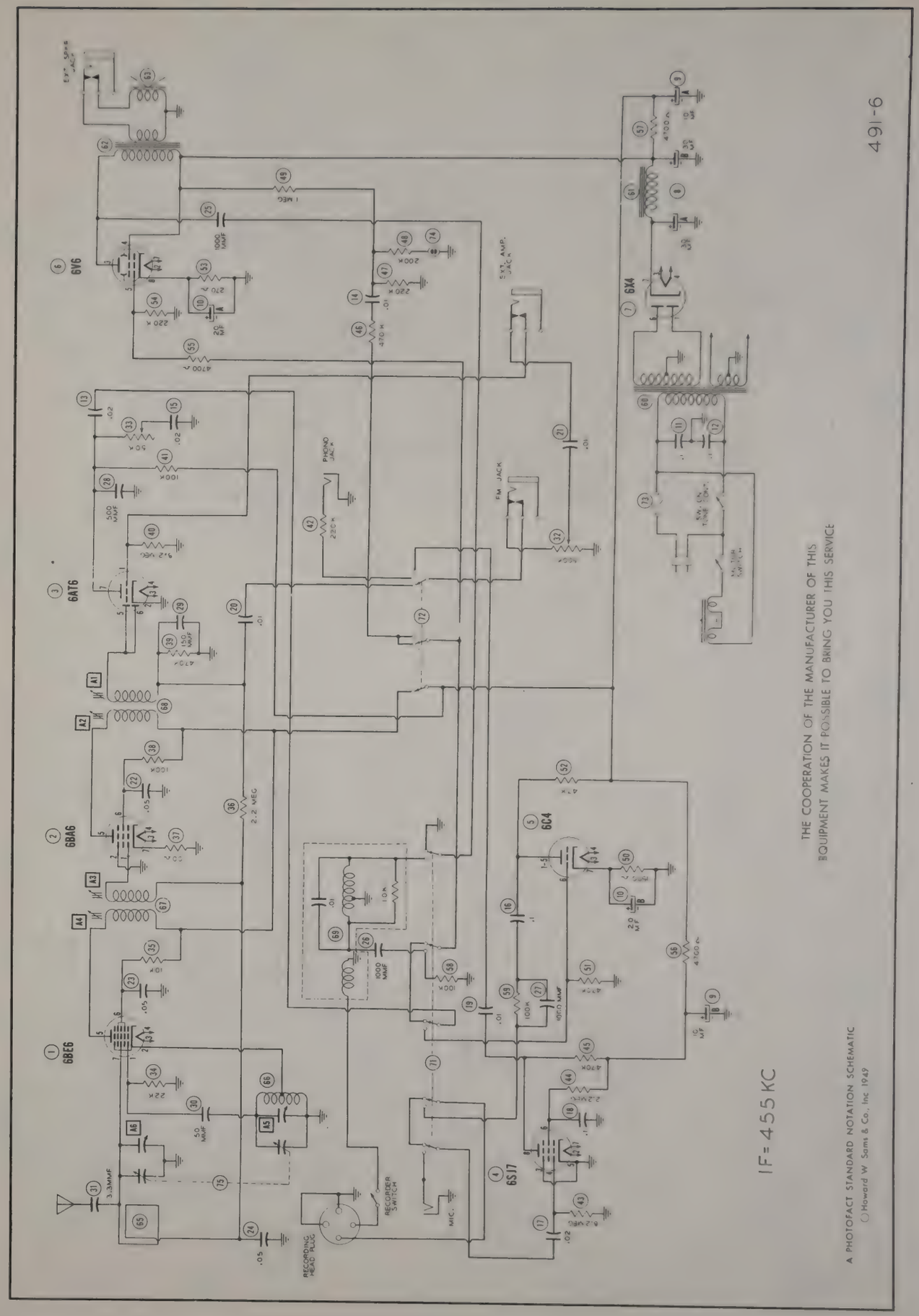
#TAKEN IN "RADIO LISTEN" POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

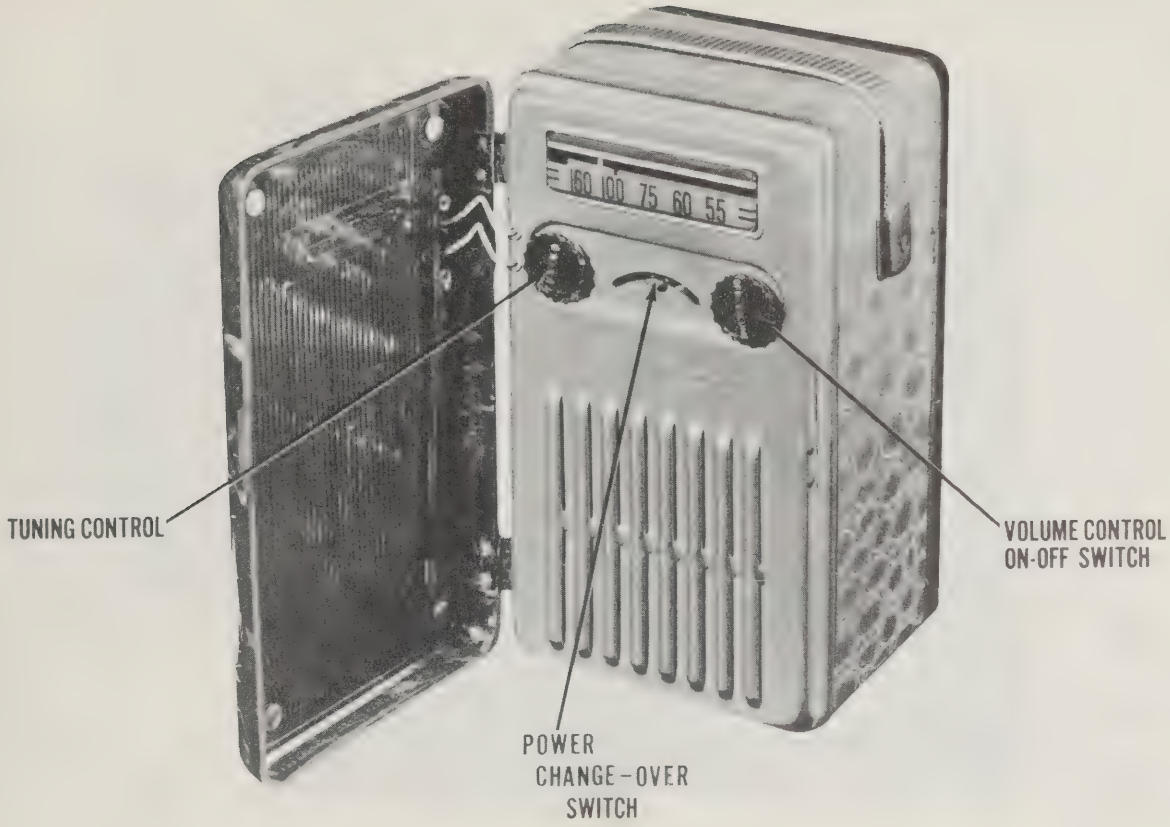
| STAGE GAIN MEASUREMENTS | | |
|---|---|---|
| CONVERSION GAIN | 25X | IN 600KC<br>OUT 455KC |
| INPUT IF TRANSFORMER | .8X | 455KC |
| IF TUBE | 250X | 455KC |
| OUTPUT IF TRANSFORMER | 1X | 455KC |
| AUDIO | 30X | 400 ∿ |
| OUTPUT | 20X | 400 ∿ |
| PRE-AMP. | 120X | 400 ∿ |

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.




491-6

AUTOMATIC MODEL TOM THUMB BUDDY
BATTERY-LINE OPERATED




AUTOMATIC MODEL TOM THUMB BUDDY
BATTERY-LINE OPERATED

AUTOMATIC MODEL TOM THUMB BUDDY

| | |
|---|---|
| **TRADE NAME** | Automatic, Model Tom Thumb Buddy |
| **MANUFACTURER** | Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston 15, Mass. |
| **TYPE SET** | Three Power Operated Portable Superheterodyne Radio Receiver |
| **TUBES** (FOUR) | Types, 1R5 Converter, 1L4 or 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output |
| POWER SUPPLY | 110-120 Volts AC-DC or 3 Volts "A" Supply and 67.5 Volts "B" Supply |
| RATING | .14 Amp. @ 117 Volts AC or 150MA @ 3 Volts DC and 8MA @ 67.5 Volts DC |
| **TUNING RANGE—BROADCAST** | 540-1600KC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to Pin 6 (grid) of 1R5. Low side to chassis. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation. |
| 2 | | Loop | 1600KC | " | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. |
| 3 | | " | 1400KC | Tune for maximum output. | " | A6 | Adjust for maximum output. |

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DATE 1/49-#491-7 SET #53-FOLDER #7

# PARTS LIST AND DESCRIPTIONS

AUTOMATIC MODEL TOM THUMB BUDDY

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: AUTOMATIC PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 1R5 | 1R5 | 7AT | |
| 2A | IF Amp. | 1L4 | 1L4 | 6AR | |
| B | IF Amp. | 1T4 | 1T4 | 6AR | |
| 3 | Det.-AVC-AF | 1S5 | 1S5 | 6AU | |
| 4 | Power Output | 3S4 | 3S4 | 7BA | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AUTOMATIC PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 5A | 30 | 150 | CE-60A | | UP4CJ62 | | D14362 | ■ Filter<br>▲ Fil. Bypass |
| B | 30 | 150 | | | | | | |
| C | 200 | 10 | | | | | | |
| 6 | .05 | 400 | | 484-05 | DT4S5 | ST-4-05 | TC-15 | Line Filter |
| 7 | .002 | 400 | | 484-002 | DT6D2 | ST-6-002 | TC-22 | Output Plate Bypass |
| 8 | .002 | 400 | | 484-002 | DT6D2 | ST-6-002 | TC-22 | Audio Coupling |
| 9 | .05 | 200 | | | GT2S5 | TST-2-05 | | Fil. Bypass |
| 10 | .05 | 200 | | | GT2S5 | TST-2-05 | | Decoupling |
| 11 | .05 | 200 | | | GT2S5 | TST-2-05 | | IF Grid Filter |
| 12 | .05 | 200 | | | GT2S5 | TST-2-05 | | AVC Filter |
| 13A | 2000 | 300 | * | 484-002 | DT6D2 | ST-6-002 | TC-22 | Audio Coupling-Cer. |
| B | 50 | 300 | | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | AF Plate Bypass |
| C | 5000 | 300 | | 484-005 | DT6D5 | ST-6-005 | TC-25 | AF Screen Bypass |
| 14 | 100 | 300 | | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Diode RF Filter-Cer. |
| 15 | 100 | 300 | | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Osc. Grid Cap.-Cer. |

*Items #13A, B & C and Item #24A, B & C are combined into one unit and may be obtained under Manufacturers Part #YA-002-001.

## CONTROLS

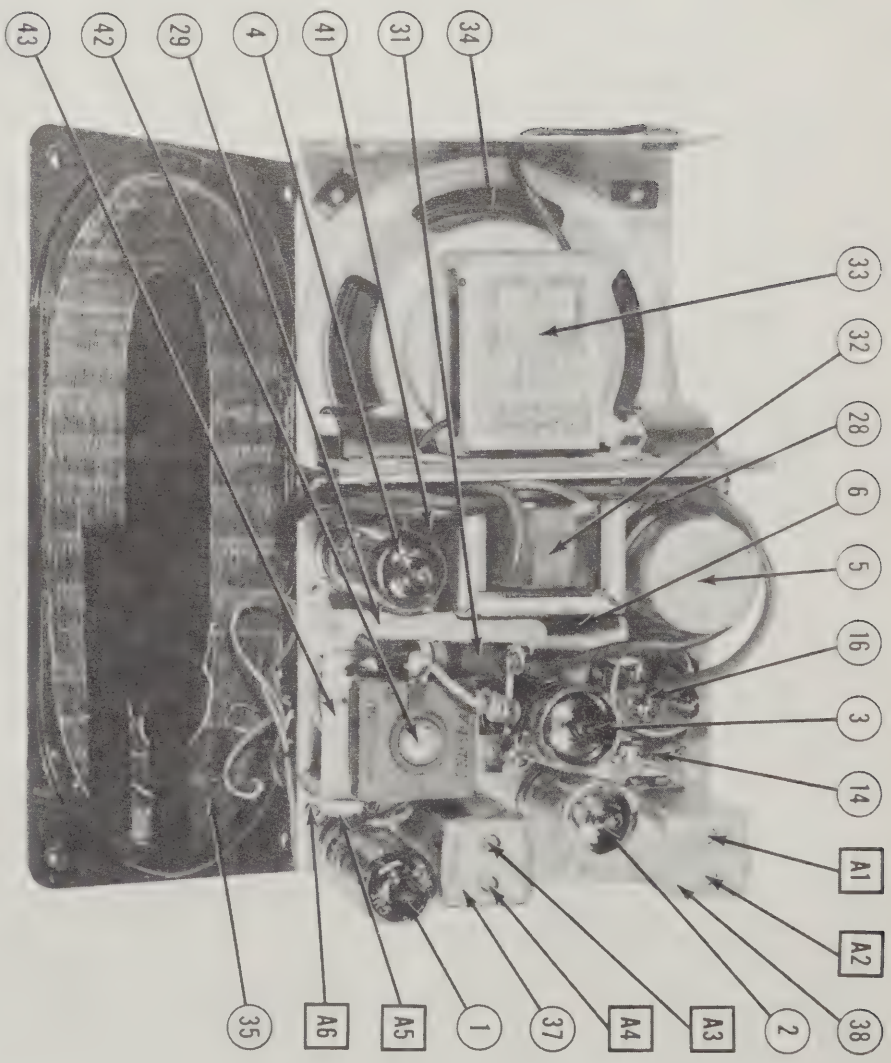
| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AUTOMATIC PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 16A | 1 Meg. | ½ | RV-51 | D13-137 | M-63-Z | Volume Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 16A per instructions |
| C | Switch | | " " | 42 | SW-A2 | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AUTOMATIC PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 17 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Osc. Grid |
| 18 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue IF Grid |
| 19 | 7500Ω | ½ | | BTS-6800 | Vi.-Grn.-Red Osc. Decoupling |
| 20 | 27Ω | ½ | | BW-½-27 | Red-Vi.-Blk.FFil. String |
| 21 | 3 Meg. | ½ | | BTS-3.3 Meg. | Or.-Blk.-Grn. AVC Network |
| 22 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 23 | 820Ω | ½ | | BTS-820 | Gray-Red-Br. Fil. String |
| 24A | 4.7 Meg. | ½ | * | BTS-4.7 Meg. | AF Screen |
| B | 1 Meg. | ½ | | BTS-1 Meg. | AF Plate Load |
| C | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Output Grid |
| 25 | 620Ω | ½ | | BTS-620 | Blue-Red-Br. Fil. String |
| 26 | 270Ω | ½ | | BW-½-270 | Red-Vi.-Br. " " |
| 27 | 820Ω | ½ | | BTS-820 | Gray-Red-Br. Bias |
| 28 | 12KΩ | ½ | | BTS-12K | Br.-Red-Or. Battery Charge Network |
| 29 | 2400Ω | 5 | | AB-2500 | Fil. Dropping |
| 30 | 3600Ω | 1 | | BTA-3900 | Or.-Blue-Red Filter |
| 31 | 47Ω | 2 | | BW-2-47 | Yl.-Vi.-Blk. Rect. Ballast |

*Item #13A,B & C and 24A,B & C are combined in one unit which may be obtained under Part #YA-002-001.

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | AUTOMATIC PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 32 | 5500Ω | 3.5Ω | 310Ω | .55Ω | | A-3328 | | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | AUTOMATIC PART No. | JENSEN PART No. | QUAM PART No. | |
| | FIELD | VC IMP. | | | | |
| 33 | PM | 3.5Ω | PM-804 | | 3A07 | |
| | CONE DIA. | VC DIA. | | | | |
| 34 | 3-3/8" | 9/16" | | | | |

## R F COILS

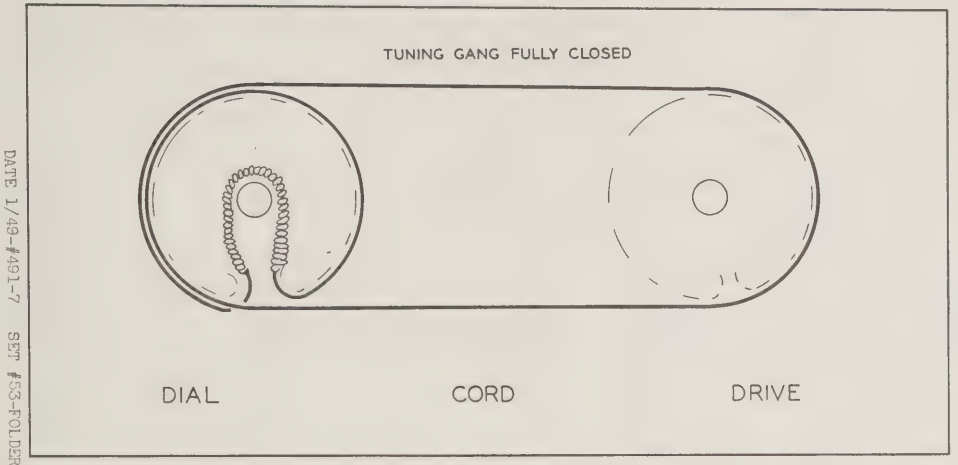
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | AUTOMATIC PART No. | MEISSNER PART No. | |
| 35 | Loop Ant. | | 3Ω | | | |
| 36 | Osc. Coil | 2.5Ω | 9.5Ω | | | |
| 37 | Input IF | 26.5Ω | 28.5Ω | | 16-6668 | |
| 38 | Output IF | 22Ω | 15.3Ω | | 16-6669 | |

## BATTERIES

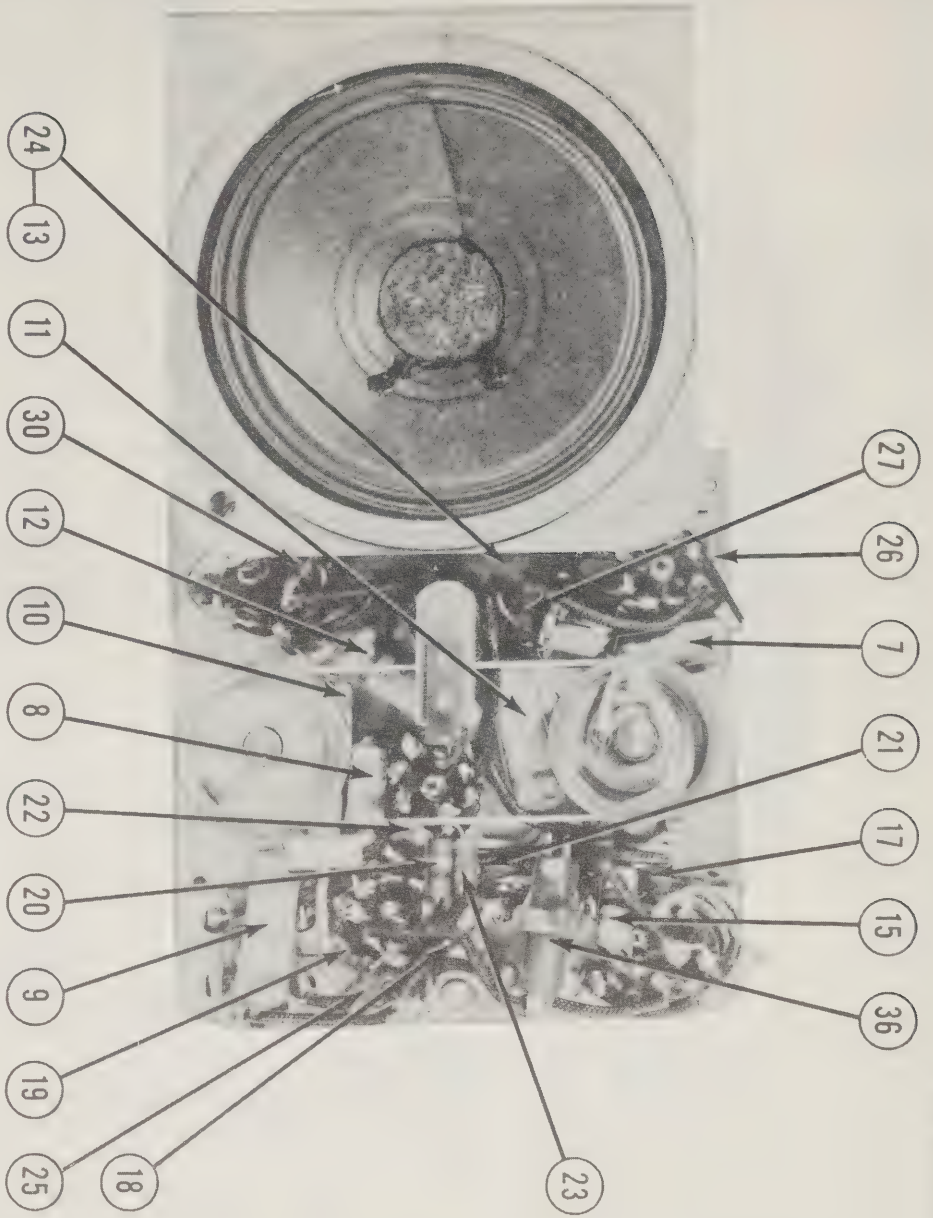
| ITEM No. | VOLTAGE | AUTOMATIC PART No. | REPLACEMENT DATA | | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | EVEREADY | | | BURGESS | | | |
| | | | "A" | "B" | "A-B" | "A" | "B" | "A-B" | |
| 39 | 3 V "A" | | 950 | | | 2R | | | 2 Used in series |
| 40 | 67.5V "B" | | | 467 | | | XX45 | | |

## MISCELLANEOUS

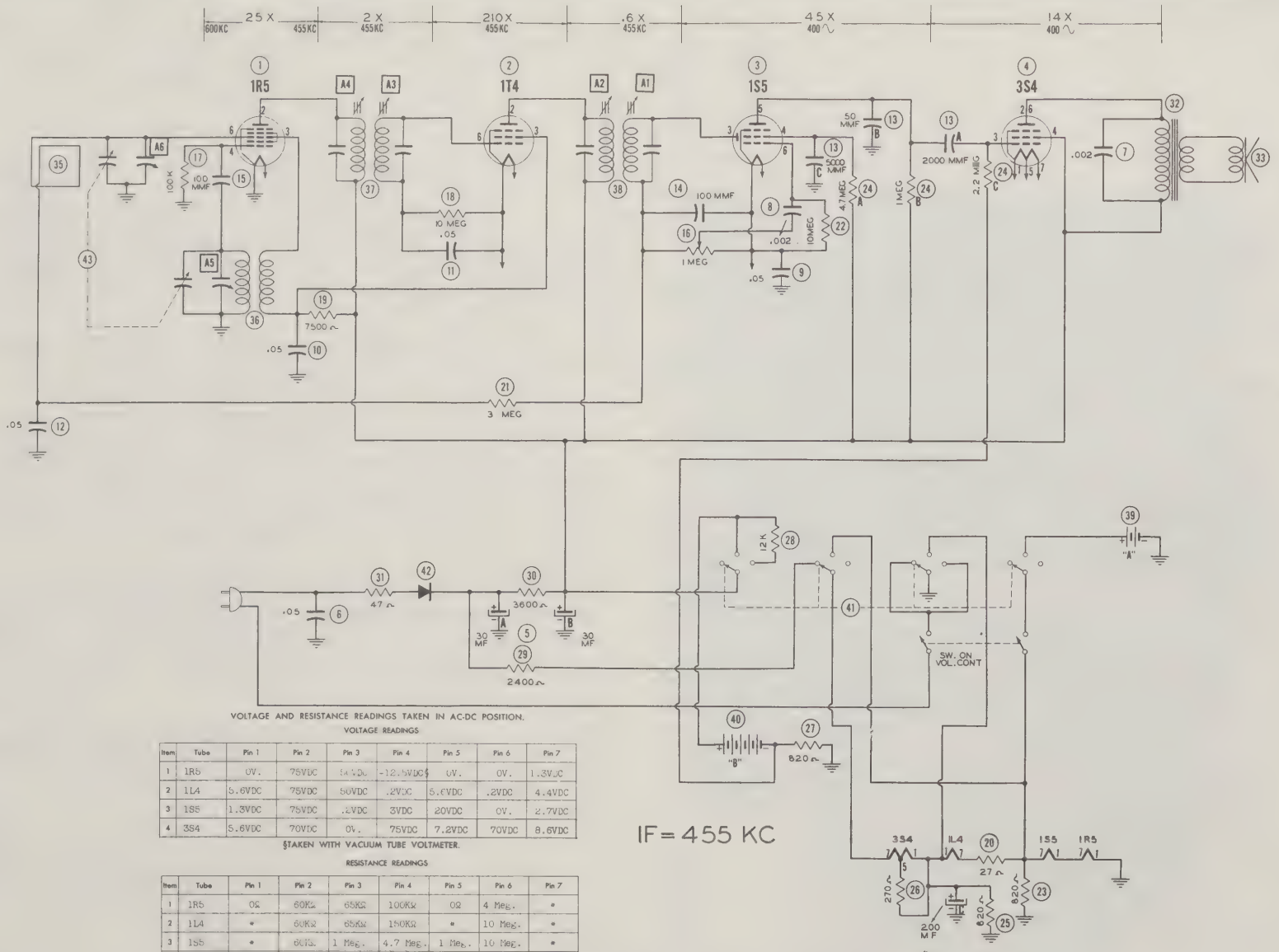
| ITEM No. | PART NAME | AUTOMATIC PART No. | NOTES |
|---|---|---|---|
| 41 | Switch | | AC/DC-Batt-Charge |
| 42 | Rectifier | | Selenium |
| 43 | 2 Gang Var. Cap | CV-95 | (16-286MMF, 20-135MMF) |




# CHASSIS—BOTTOM VIEW




DATE 1/49-#491-7 SET #53-FOLDER #7
AUTOMATIC MODEL FROM THUMB BUDDY




VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | 0V. | 75VDC | 84VDC | -12.5VDC§ | 0V. | 0V. | 1.3VDC |
| 2 | 1L4 | 5.6VDC | 75VDC | 50VDC | .2VDC | 5.6VDC | .2VDC | 4.4VDC |
| 3 | 1S5 | 1.3VDC | 75VDC | .2VDC | 3VDC | 20VDC | 0V. | 2.7VDC |
| 4 | 3S4 | 5.6VDC | 70VDC | 0V. | 75VDC | 7.2VDC | 70VDC | 8.6VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | 0Ω | 60KΩ | 65KΩ | 100KΩ | 0Ω | 4 Meg. | * |
| 2 | 1L4 | * | 60KΩ | 65KΩ | 150KΩ | * | 10 Meg. | * |
| 3 | 1S5 | * | 60KΩ | 1 Meg. | 4.7 Meg. | 1 Meg. | 10 Meg. | * |
| 4 | 3S4 | * | 60KΩ | 2.2 Meg. | 60KΩ | * | 60KΩ | * |

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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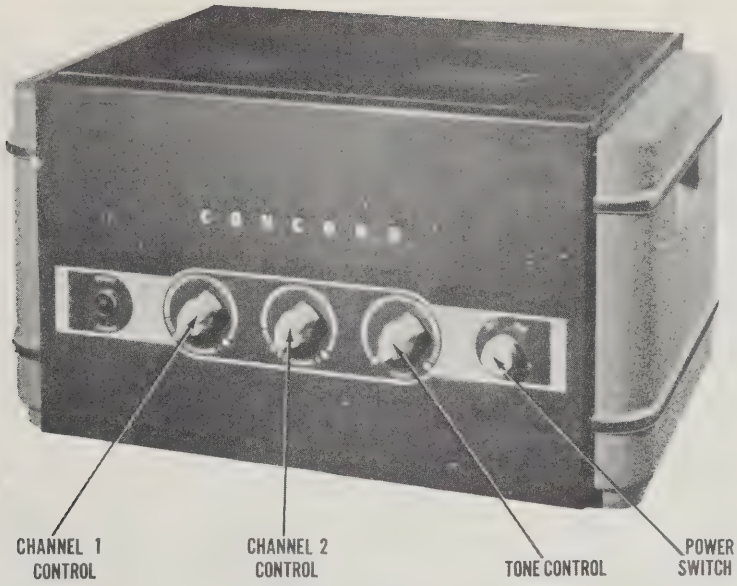
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to Pin #1 of 1S5.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.




CONCORD MODEL 315WL

| | |
|---|---|
| **TRADE NAME** | Concord, Models 315WL, 315WM |
| **SUPPLIER** | Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill. |
| **TYPE SET** | AC Operated 3 Channel Audio Amplifier |
| **TUBES** (SEVEN) | Types, 6SJ7 Mic. 1 Amp., 6SJ7 Mic. 2 Amp., 6SJ7 Mixer, 6SJ7 Driver, (2) 6V6GT Power Output, 5Z4 or 6X5GT Rectifier |
| **POWER SUPPLY** | 110-120 Volts AC RATING .58 Amp. @ 117 Volts AC |

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SJ7 | 0V. | 3VAC | .8VDC | 0V. | .8VDC | 20VDC | 3VAC | 40VDC |
| 2 | 6SJ7 | 0V. | 3VAC | .8VDC | 0V. | .8VDC | 20VDC | 3VAC | 25VDC |
| 3 | 6SJ7 | 0V. | 3VAC | 1.6VDC | 0V. | 1.6VDC | 35VDC | 3VAC | 75VDC |
| 4 | 6SJ7 | 0V. | 3VAC | 250VDC | 0V. | 12VDC | 250VDC | 3VAC | 250VDC |
| 5 | 6V6GT | 0V. | 3VAC | 390VDC | 310VDC | 0V. | 0V. | 3VAC | 22VDC |
| 6 | 6V6GT | 0V. | 3VAC | 390VDC | 310VDC | 0V. | 0V. | 3VAC | 22VDC |
| 7 | 5Z4 | 0V. | 400VDC | 0V. | 350VAC | 0V. | 350VAC | 400VDC | 400VDC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SJ7 | 0Ω | .05Ω | 2KΩ | 1 Meg. | 2KΩ | 2.2 Meg. | .05Ω | 700KΩ |
| 2 | 6SJ7 | 0Ω | .05Ω | 2KΩ | 1 Meg. | 2KΩ | 2.2 Meg. | .05Ω | 700KΩ |
| 3 | 6SJ7 | 0Ω | .05Ω | 3.3KΩ | 1.2 Meg. | 3.3KΩ | 2.2 Meg. | .05Ω | 600KΩ |
| 4 | 6SJ7 | 0Ω | .05Ω | 110KΩ | 120KΩ | 2.7KΩ | 110KΩ | .05Ω | 110KΩ |
| 5 | 6V6GT | 0Ω | .05Ω | 80KΩ | 95KΩ | 750Ω | INF. | .05Ω | 340Ω |
| 6 | 6V6GT | 0Ω | .05Ω | 80KΩ | 95KΩ | 750Ω | INF. | .05Ω | 340Ω |
| 7 | 5Z4 | INF. | 80KΩ | INF. | 180Ω | INF. | 190Ω | 80KΩ | 80KΩ |

**RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS**

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

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DATE 1/49-#491-8 SET #53-FOLDER #8

CONCORD MODELS
315WL, 315WM

CONCORD MODELS
315WL, 315WM

# PARTS LIST AND DESCRIPTIONS

CONCORD MODELS 315WL, 315WM

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: CONCORD PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Mic. 1 Amp. | 6SJ7 | 6SJ7 | 8N | |
| 2 | Mic. 2 Amp. | 6SJ7 | 6SJ7 | 8N | |
| 3 | Mixer | 6SJ7 | 6SJ7 | 8N | |
| 4 | Driver | 6SJ7 | 6SJ7 | 8N | |
| 5 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 6 | " " | 6V6GT | 6V6GT | 7AC | |
| 7A | Rectifier | 5Z4 | 5Z4 | 5C | |
| B | " | 6X5GT | 6X5GT | 6S | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: CONCORD PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 8 | 40 | 450 | | AF8J | UP4045 | DY-40-450 | EL-4 | Filter • |
| 9A | 10 | 450 | | AF2J | UP1045 | DY-10-450/ | EL-1 | ■ " |
| B | 25 | 50 | | PRS50/25 | BR205 | 25-15 | TA-25 | ▲ Cathode Bypass |
| 10A | 10 | 450 | | AF222J | UP11145 | DY-3x10-450 | EL-310 | Decoupling |
| B | 10 | 450 | | | | | | ▲ " |
| C | 10 | 450 | | | | | | ■ " |
| 11 | 25 | 25 | | M-25-25 | BR252A | M-25-25 | TA-25 | Cathode Bypass |
| 12 | .01 | 400 | | 484-01 | DT4S1 | ST-4-01 | TC-11 | Power Switch Bypass |
| 13 | .002 | 1600 | | 1684-002 | MD16D2 | STM-16-002 | TR-22 | Output Plate Bypass |
| 14 | .1 | 400 | | 484-.1 | DT4P1 | ST-4-1 | TC-1 | Tone Compensation |
| 15 | .01 | 400 | | 484-01 | DT4S1 | ST-4-01 | TC-11 | Audio Coupling |
| 16 | .1 | 400 | | 484-.1 | DT4P1 | ST-4-1 | TC-1 | AF Screen Bypass |
| 17 | .01 | 400 | | 484-01 | DT4S1 | ST-4-01 | TC-11 | Audio Coupling |
| 18 | .01 | 400 | | 484-01 | DT4S1 | ST-4-01 | TC-11 | " " |
| 19 | .2 | 200 | | 484-.2 | DT4P2 | ST-4-2 | TC-2 | AF #1 Screen Bypass |
| 20 | .2 | 200 | | 484-.2 | DT4P2 | ST-4-2 | TC-2 | AF #2 Screen Bypass |
| 21 | 750 | 500 | | 1468-00075 | 1W5T7 | MW.5-37 | 1FM-37 | Tone Compensation |
| 22 | 750 | 500 | | 1468-00075 | 1W5T7 | MW.5-37 | 1FM-37 | " " |
| 23 | 60 | 300 | | 1468-00005 | 5W5Q5 | MO.5-45 | MS-46 | AF Grid Bypass-Cer. |

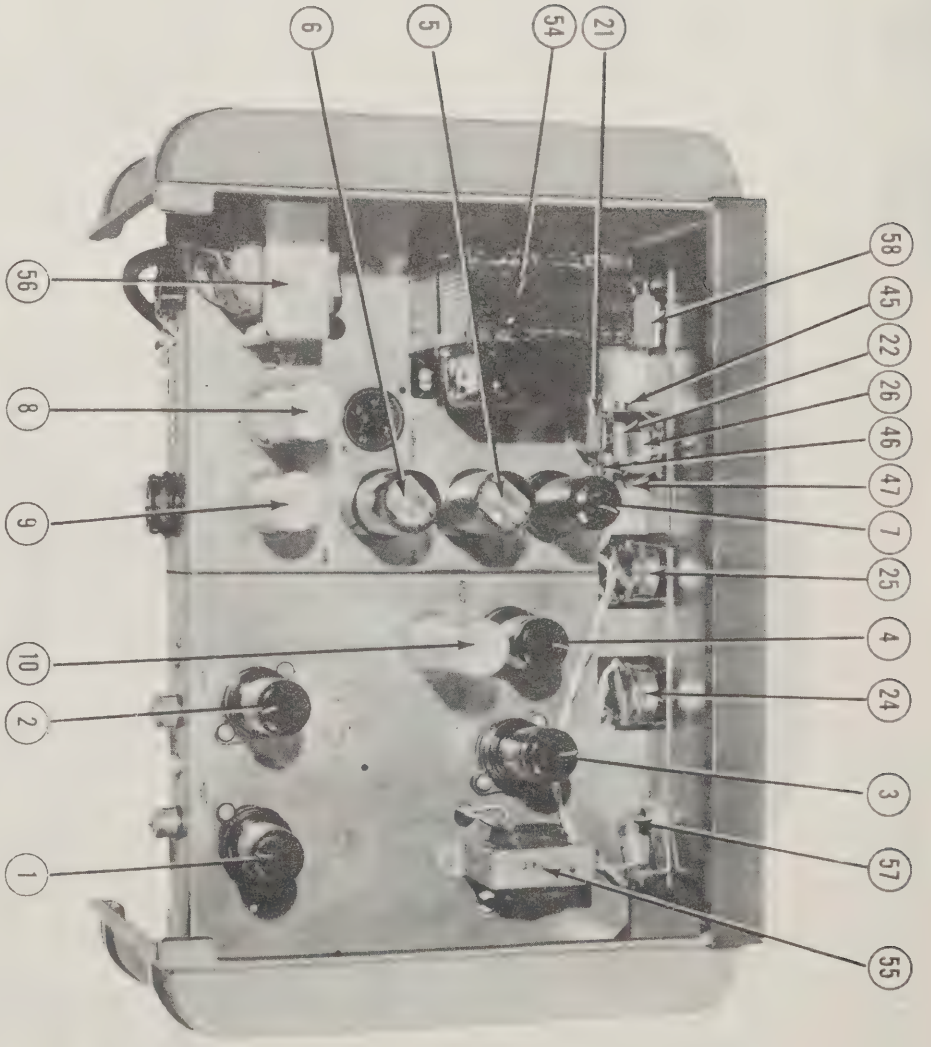
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: CONCORD PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 24A | 2 Meg. | ½ | | D13-139 | M-66-Z | Channel 1 Control |
| B | Shaft | | | A | Not Req. | Attach to 24A per instructions |
| 25A | 2 Meg. | ½ | | D13-139 | M-66-Z | Channel 2 Control |
| B | Shaft | | | A | Not Req. | Attach to 25A per instructionss |
| 26 | 4 Meg. | ½ | | | | Tone Control tapped @ 1.5 Meg. |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: CONCORD PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 27 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 1st Mic. Amp. Grid |
| 28 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 2nd " " " |
| 29 | 2000Ω | ½ | | BTS-2200 | Red-Blk.-Red 1st Mic. Amp. Cathode |
| 30 | 2000Ω | ½ | | BTS-2200 | Red-Blk.-Red 2nd " " " |
| 31 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. 1st Mic. Amp. Screen |
| 32 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. 2nd Mic. Amp. Screen |
| 33 | 560KΩ | ½ | | BTS-560K | Grn.-Blue-Yl. 1st Mic. Amp. Plate Load |
| 34 | 560KΩ | ½ | | BTS-560K | Grn.-Blue-Yl. 2nd " " " " |
| 35 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. Isolation |
| 36 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. " |
| 37 | 330Ω | ½ | | BTS-330Ω | Or.-Or.-Red Mixer Cathode |
| 38 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. Mixer Screen |
| 39 | 560KΩ | ½ | | BTS-560K | Grn.-Blue-Yl. Mixer Plate Load |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CONCORD PART No. | IRC PART No. | |
| 40 | 51KΩ | 1 | | BTA-47K | Grn.-Br.-Or. Voltage Dropping |
| 41 | 15KΩ | 1 | | BTA-15K | Br.-Grn.-Or. " " |
| 42 | 15KΩ | 1 | | BTA-15K | Br.-Grn.-Or. " " |
| 43 | 120KΩ | ½ | | BTS-120K | Br.-Red-Yl. Driver Grid |
| 44 | 2700Ω | ½ | | BTS-2700 | Red-Vi.-Red Driver Cathode |
| 45 | 500KΩ | ½ | | BTS-470K | Grn.-Blk.-Yl. Tone Compensation |
| 46 | 330KΩ | ½ | | BTS-330K | Or.-Or.-Yl. " " |
| 47 | 500KΩ | ½ | | BTS-470K | Grn.-Blk.-Yl. " " |
| 48 | 50KΩ | ½ | | BTS-47K | Grn.-Blk.-Or. Output Grid |
| 49 | 50KΩ | ½ | | BTS-47K | Grn.-Blk.-Or. " " Output Cathode |
| 50 | 342Ω | 5 | | AB-350 | |
| 51 | 100KΩ | 1 | | BTA-100K | Br.-Blk.-Yl. Bias |
| 52 | 15KΩ | 10 | | AB-15K | Filter |
| 53 | .5Ω | 2 | | BW-2-.47 | Series Rect. Fil.-See Note |

Note-Used only on models using 5Z4 rectifier.

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | CONCORD PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. |
| 54 | 127V AC tapped @ 117V AC @ .58A | 700V CT @ .07ADC | 6.1V AC @ 2.0A | 6.1V CT @ 2.15A | | | | |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | TURNS RATIO PRI. to ½SEC. | DC RES. PRI. | DC RES. SEC. | CONCORD PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| 55 | 2.77 to 1 | 200Ω | 135Ω CT | | A-4292 | | | |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE PRI. | IMPEDANCE SEC. | DC RES. PRI. | DC RES. SEC. | CONCORD PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| 56 | 10KΩ CT | 4Ω<br>5.3Ω<br>8Ω<br>16Ω<br>250Ω<br>600Ω | 510Ω CT | .3Ω<br>.4Ω<br>.5Ω<br>.6Ω<br>15Ω<br>25Ω | | | | A-3027 | |

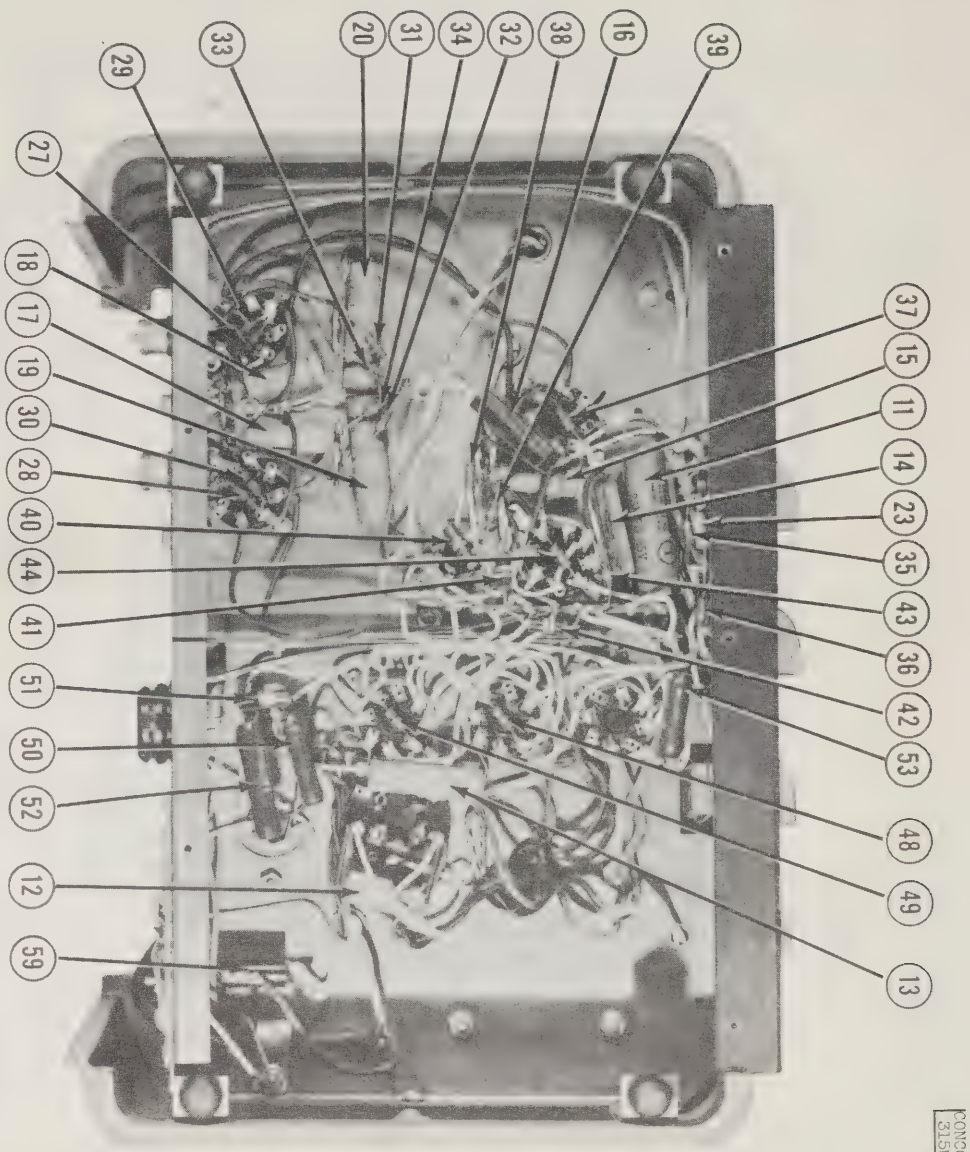
## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA CONCORD PART No. | REPLACEMENT DATA | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 57 | Bayonet | 7.5V | 0.2 | White | | | Type 51 |

## MISCELLANEOUS

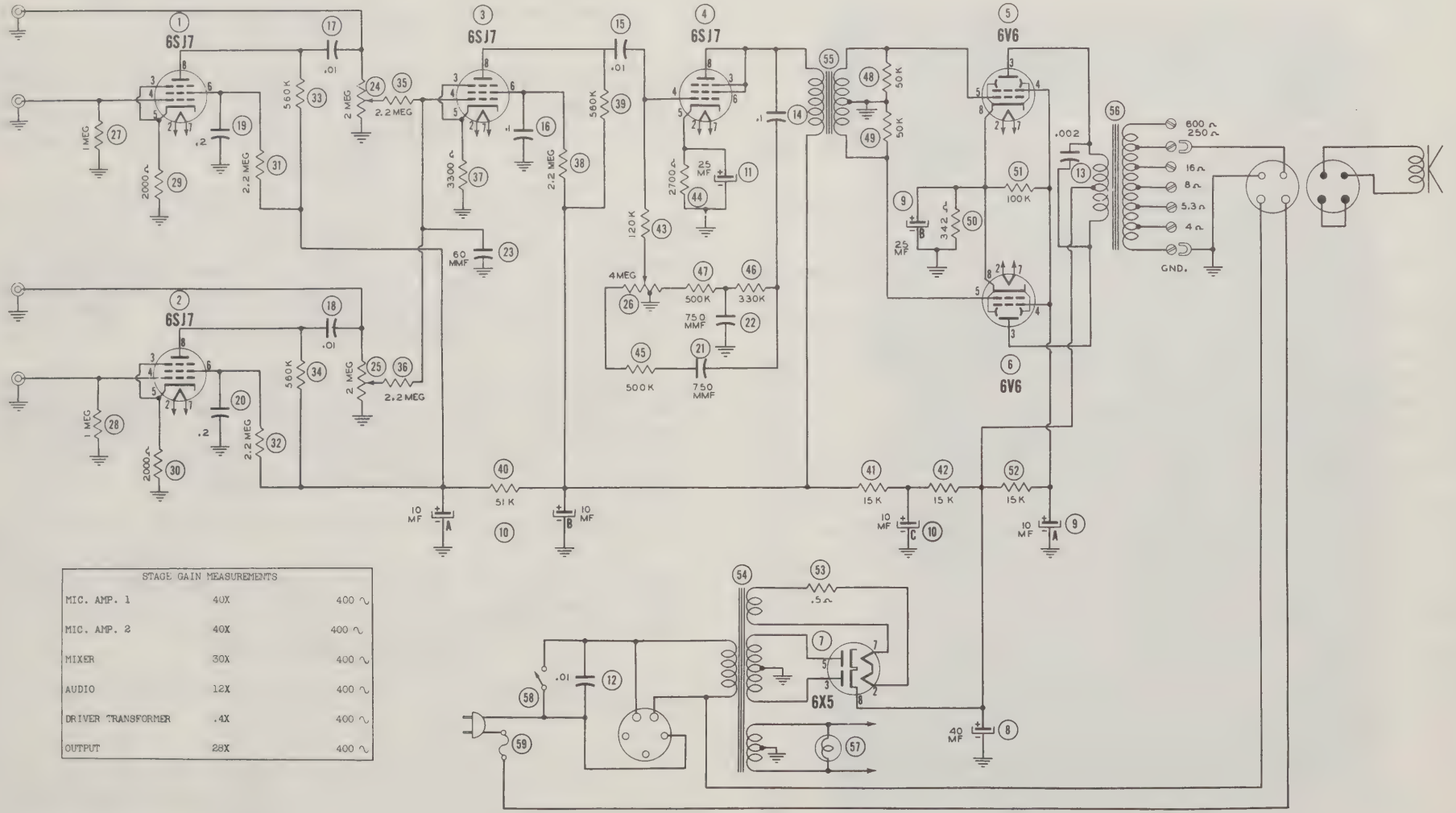
| ITEM No. | PART NAME | CONCORD PART No. | NOTES |
|---|---|---|---|
| 58 | Switch | | Power-On-Off |
| 59 | Fuse | | 2 Amp. |

# CHASSIS—BOTTOM VIEW




CONCORD MODELS 31.5WL, 31.5WM

CONCORD MODELS 21.5WL, 21.5WM

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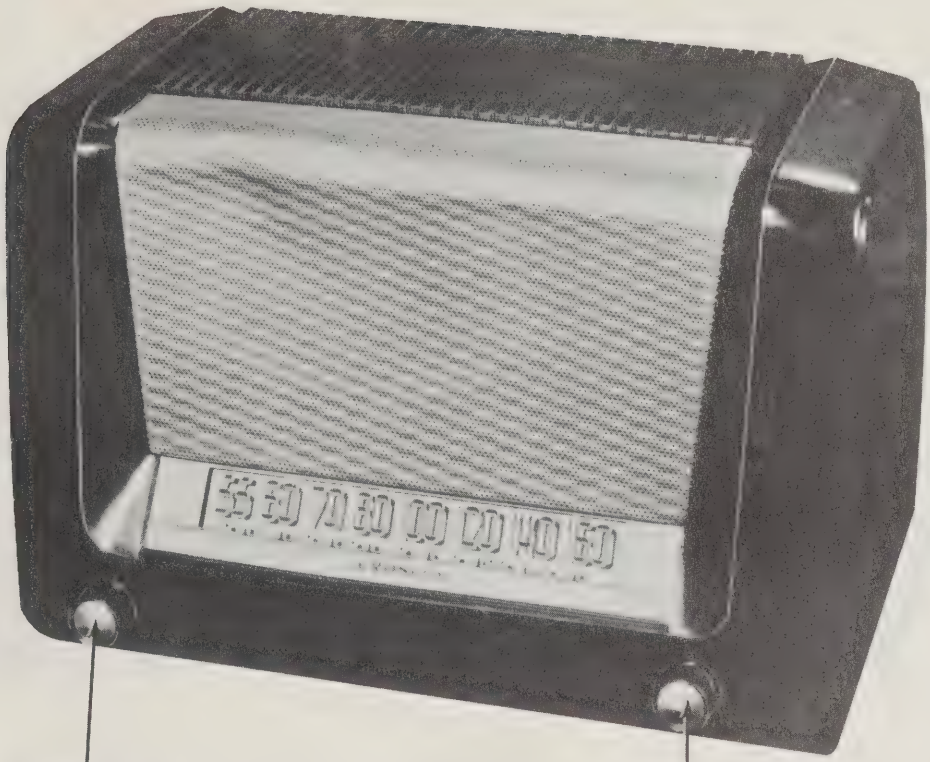
THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

CROSLEY MODELS
9-113, 9-114W




CROSLEY MODELS
9-113, 9-114W

CROSLEY MODEL 9-113

| | |
|---|---|
| **TRADE NAME** | Crosley, Model 9-113, 9-114W |
| **MANUFACTURER** | Crosley, 1329 Arlington St., Cincinnati, Ohio |
| **TYPE SET** | AC-DC Operated Superheterodyne Receiver with Loop Antenna |
| **TUBES** (FIVE) | Types, 12BE6 Converter, 12BA6 IF Amp., 12AV6 Det.-AVC-AF, 50C5 Power Output, 35W4 Rectifier |
| **POWER SUPPLY** | 105-125 Volts AC-DC |
| **TUNING RANGE—BROADCAST** | 540-1600KC RATING .23 Amp. @ 117 Volts AC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | 200 MMFD | High side to rear stator of tuning cap. Low side to B-. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 2 | | Loop | 1620KC | " | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. |
| 3 | | " | 1400KC | Tune for maximum output. | " | A6 | Adjust for maximum output. |

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DATE 1/49-#491-9 SET #53-FOLDER #9

# PARTS LIST AND DESCRIPTIONS



## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: CROSLEY PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 12BE6 | 12BE6 | 7CH | |
| 2 | IF Amp. | 12BA6 | 12BA6 | 7BK | |
| 3 | Det.-AVC-AF | 12AV6 | 12AV6 | | |
| 4 | Power Output | 50C5 | 50C5 | | |
| 5 | Rectifier | 35W4 | 35W4 | 5BQ | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: CROSLEY PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 6A | 100 | 150 | 143680 | PRSA150/50-50† | EZ55515C† | DSB-804020-150† | D12-878† | Filter-Red |
| B | 30 | 150 | | PRSA150/30 | | | | " -Blue |
| 7 | .05 | 200 | 39001-17 | 484-05 | GT2S5 | ST-4-05 | TC-15 | Line Filter |
| 8 | .05 | 200 | 39001-17 | 484-05 | GT2S5 | ST-4-05 | TC-15 | Line Isolation |
| 9 | .02 | 400 | 39001-80 | 484-02 | GT4S2 | ST-4-02 | TC-12 | Output Plate Bypass |
| 10 | .02 | 200 | 39001-80 | 484-02 | GT2S2 | ST-4-02 | TC-12 | Audio Coupling |
| 11 | .003 | 600 | 39001-76 | 684-003 | GT6D3 | ST-6-003 | TC-23 | " " |
| 12 | .00025 | 600 | 39001-73 | 1468-00025 | GT6T25 | ST-6-00025 | TC-35 | AF Plate Bypass |
| 13 | .05 | 200 | 39001-17 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 14A | 100 | 300 | * | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Diode RF Filter-Cer. |
| B | 100 | 300 | | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 15 | 50 | 300 | 137727-21 | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | Osc. Grid Cap.-Cer. |
| 16 | 18 | 300 | 137727-66 | | | | | Fixed Trimmer " |
| 17A | 5000 | 300 | 144675-1 | 484-005 | GT6D5 | ST-6-005 | TC-25 | Audio Coupling-Cer. |
| B | 220 | 300 | | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | AF Plate Bypass |
| C | 2000 | 300 | | 484-002 | GT6D2 | ST-6-002 | TC-22 | Audio Coupling |
| D | 220 | 300 | | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Diode RF Filter |

*Item #14A, B & 21 are combined into one unit obtainable under Manufacturers Part #142951-2. Not used in later production.
†Omit bypass section.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: CROSLEY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 18A | 1 Meg. | ½ | 39368-14 | D13-137 | AM-63-Z | Volume Control |
| B | Shaft | | Not Req. | E | KSS-3 | Attach to 18A per instructions |
| C | Switch | | 39369-1 | 41 | SW-A | " " " " " |

## RESISTORS

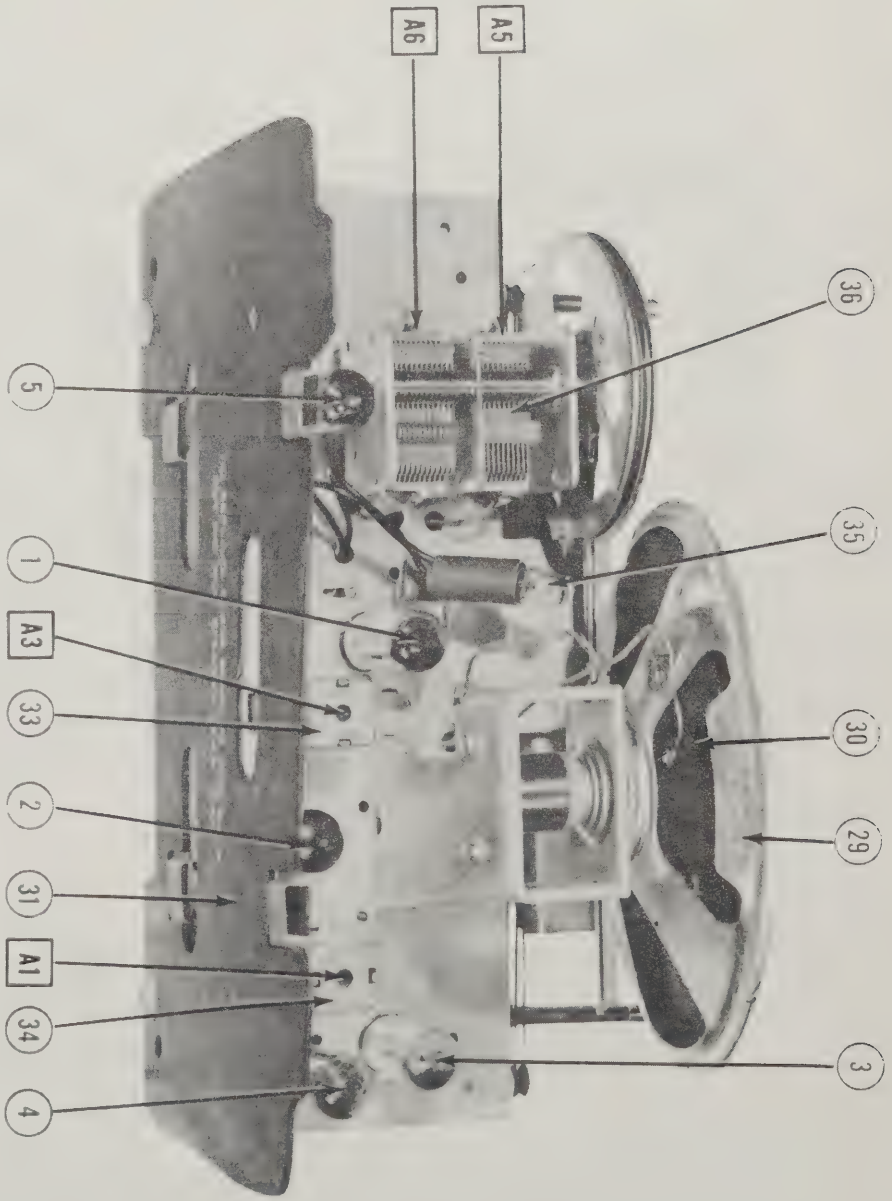
| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: CROSLEY PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 19 | 22KΩ | ½ | 39373-60 | BTS-22K | Red-Red-Or. Osc. Grid |
| 20 | 3.3 Meg. | ½ | 39373-100 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 21 | 47KΩ | ½ | * | BTS-47K | Diode Filter |
| 22 | 10 Meg. | ½ | 39373-107 | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 23 | 470KΩ | ½ | 39373-87 | BTS-470K | Yl.-Vi.-Yl. AF Plate Load |
| 24 | 470KΩ | ½ | 39373-87 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 25 | 150Ω | ½ | 39373-16 | BW-½-150 | Br.-Grn.-Br. Output Cathode |
| 26 | 1200Ω | 1 | 39373-144 | BTA-1200 | Br.-Red-Red Filter |
| 27 | 47Ω | 1 | 39373-119 | BW-1-47 | Yl.-Vi.-Blk. Surge Limiter |

*Items #14A, B & 21 are combined into one unit obtainable under Manufacturers Part #142951-2. Not used in later productions.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: CROSLEY PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 28 | 2100Ω | 3.7Ω | 230Ω | 1Ω | B-137723 | A-3876 | T22S45 | A-2928 | |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: CROSLEY PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 29 | FIELD PM | VC IMP. 3.7Ω | 143694 | | 46A15‡ | ‡Drill and tap magnet frame. |
| 30 | CONE DIA. 4"x6" | VC DIA. 9/16" | | | | |

## R F COILS

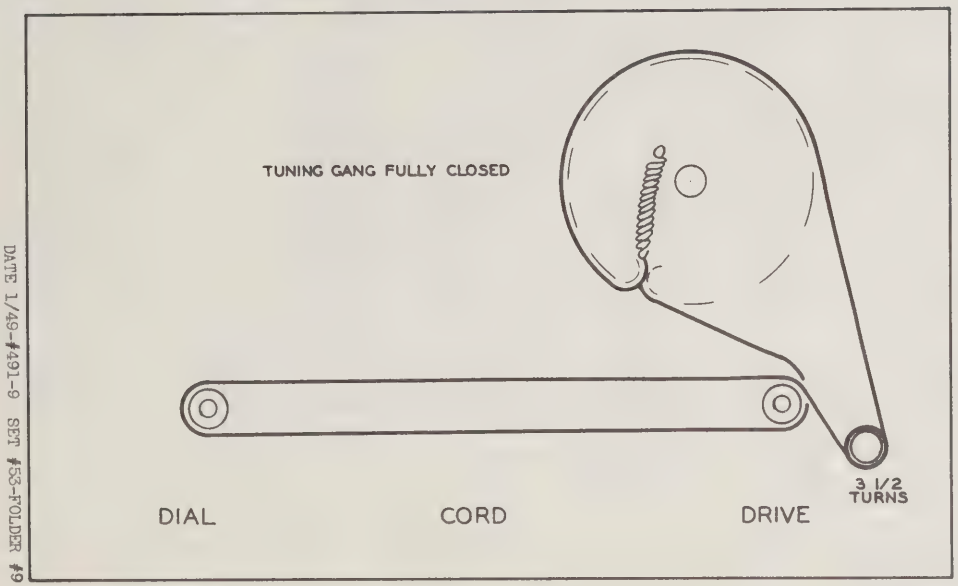
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: CROSLEY PART No. | MEISSNER PART No. |
|---|---|---|---|---|---|
| 31 | Loop Ant. | | 3.5Ω | 144328 | |
| 32 | Osc. Coil | 1Ω | 8Ω | 144325 | 14-1060 |
| 33 | Input IF | 10.5Ω | 10.5Ω | 139919-4 | 16-6678 |
| 34 | Output IF | 17.5Ω | 17.5Ω | 139919-3 | 16-6678 |

## DIAL LIGHT

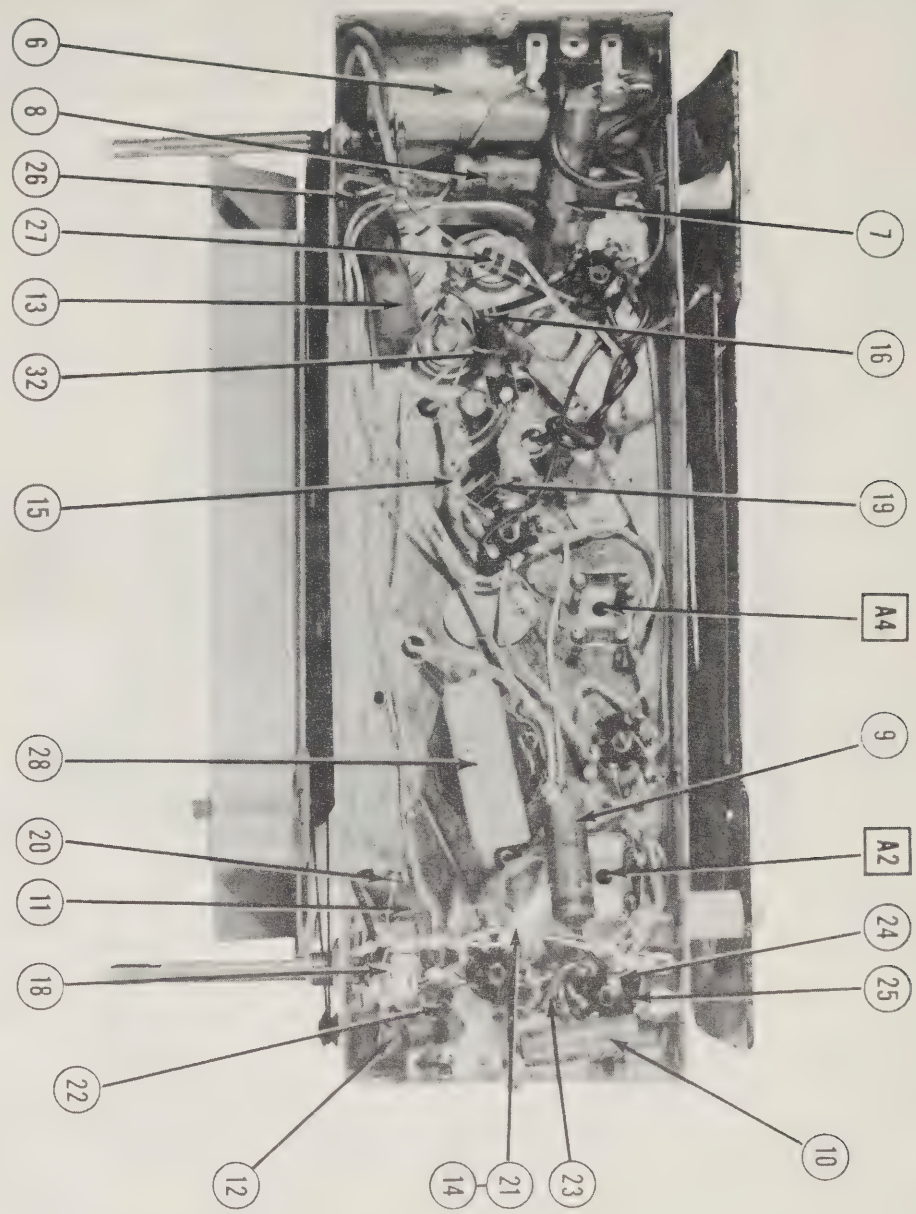
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA: CROSLEY PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 35 | Bayonet | 6-8 | 0.15 | Brown | W-48858 | | Type #47 |

## MISCELLANEOUS

| ITEM No. | PART NAME | CROSLEY PART No. | NOTES |
|---|---|---|---|
| 36 | 2 Gang Var. Cap | 137073-27 | (24-452MMF, 18-187MMF) |
| | Cabinet | 144034-1 | Model 9-113 |
| | " | 144127 | " 9-114W |
| | Dial Glass | 144027 | |
| | Knob | 138576-10 | Model 9-113 |
| | " | 138576-9 | Model 9-114W |
| | Dial Pointer | 144070 | |

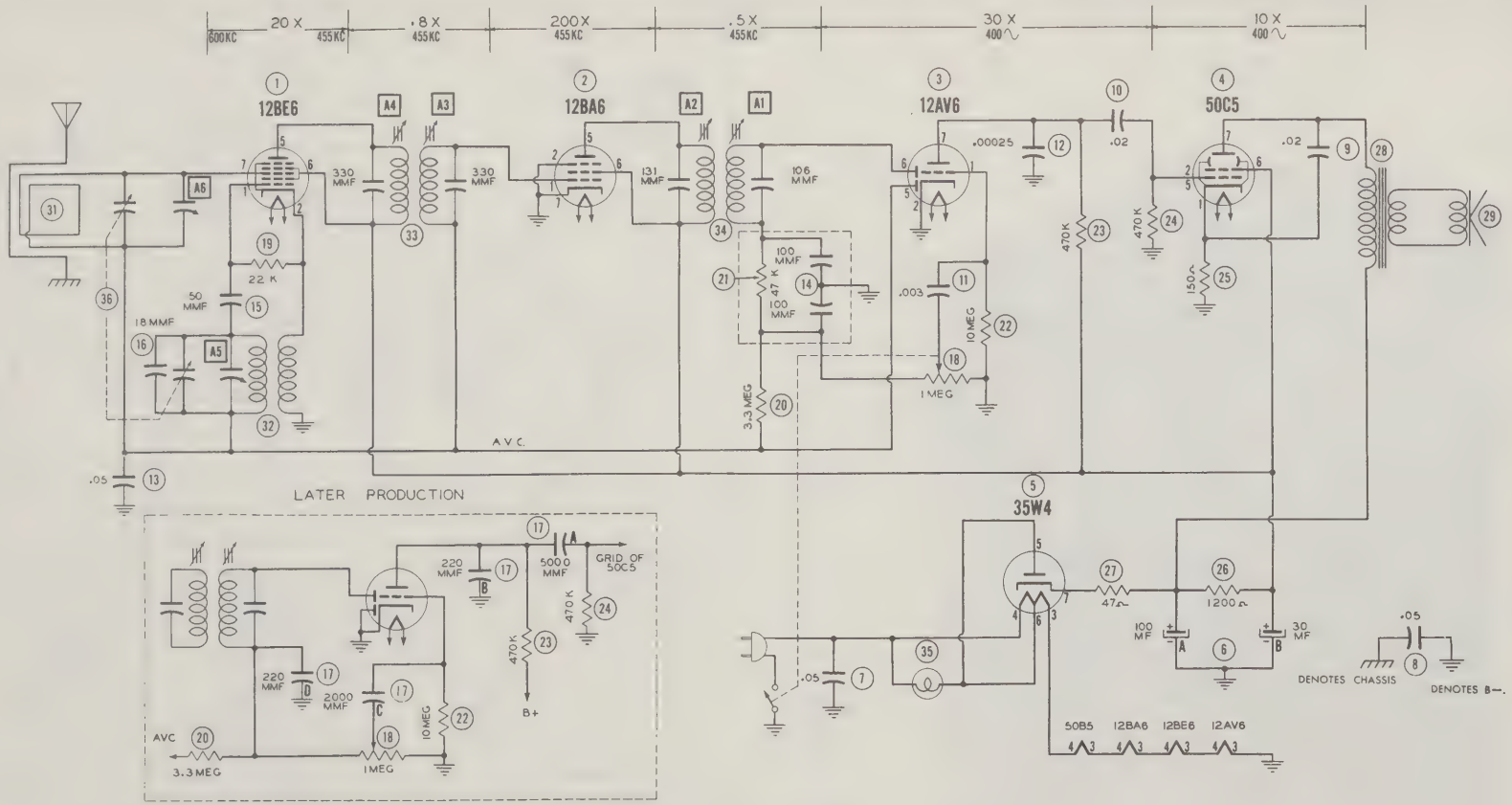



## CHASSIS—BOTTOM VIEW





CROSLEY MODEL 9-113




IF=455 KC

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 12BE6 | -7.4VDC§ | 0V. | 13VAC | 26VAC | 88VDC | 88VDC | -.7VDC |
| 2 | 12BA6 | -.7VDC | 0V. | 26VAC | 39VAC | 88VDC | 88VDC | 0V. |
| 3 | 12AV6 | -.6VDC | 0V. | 0V. | 13VAC | 0V. | -.4VDC | 50VDC |
| 4 | 50C5 | 5.8VDC | 0V. | 39VAC | 90VAC | 0V. | 88VDC | 110VDC |
| 5 | 35W4 | 0V. | 0V. | 90VAC | 117VAC | 112VAC | 112VAC | 120VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 12BE6 | 22KΩ | 1Ω | 13Ω | 25Ω | 100KΩ | 100KΩ | 4.3 Meg. |
| 2 | 12BA6 | 4.3 Meg. | 0Ω | 25Ω | 40Ω | 100KΩ | 100KΩ | 0Ω |
| 3 | 12AV6 | 10 Meg. | 0Ω | 0Ω | 13Ω | 0Ω | 1 Meg. | 570KΩ |
| 4 | 50C5 | 150Ω | 470KΩ | 40Ω | 95Ω | 470KΩ | 100KΩ | 100KΩ |
| 5 | 35W4 | 0Ω | 0Ω | 95Ω | 120Ω | 118Ω | 118Ω | 100KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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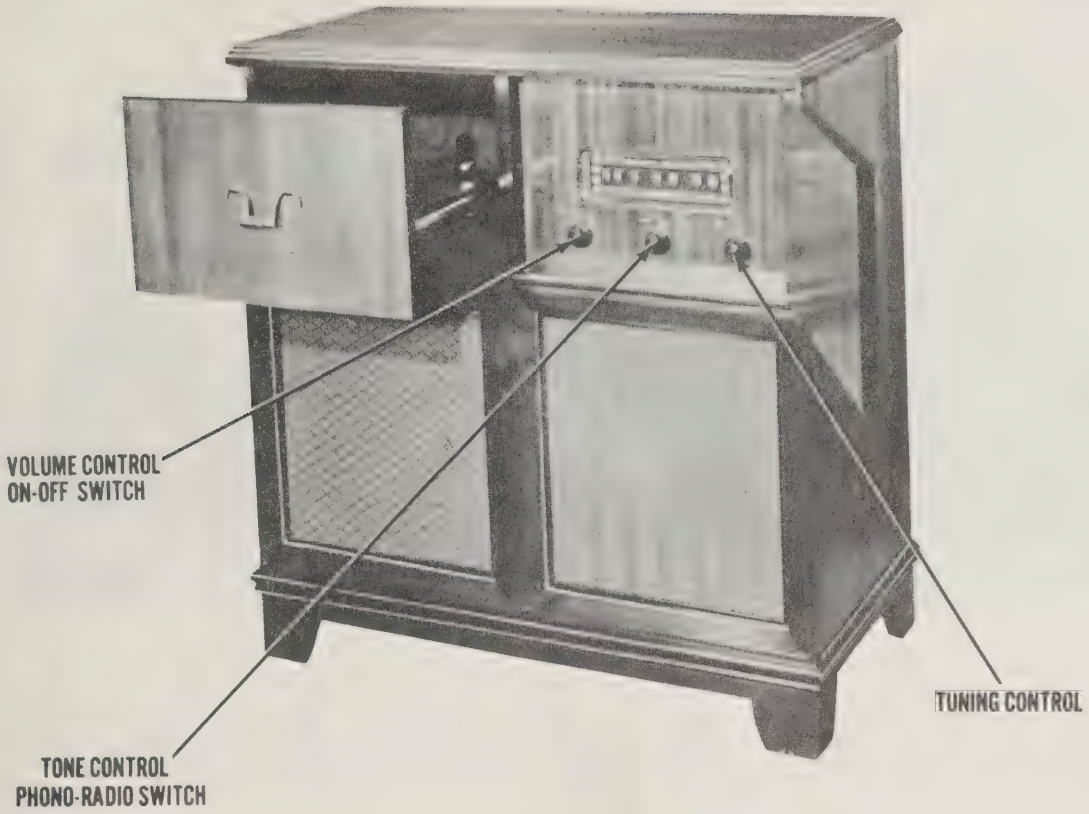
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.




CROSLEY MODELS
9-209, 9-212M

CROSLEY MODELS
9-209, 9-212M

CROSLEY MODEL 9-212M

| | |
|---|---|
| TRADE NAME | Crosley, Model 9-209, 9-212M |
| MANUFACTURER | Crosley Corp., 1329 Arlington St., Cincinnati, Ohio |
| TYPE SET | AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna |
| TUBES (SIX) | Types, 7A7 RF Amp., 7Q7 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7B5 Power Output, 5AZ4 Rectifier. |
| POWER SUPPLY | 105-125 Volts AC |
| TUNING RANGE—BROADCAST | 540-1600KC RATING .39 Amp. @ 117 Volts AC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Loop antenna must remain connected at all times or replaced by a dummy antenna consisting of a 17.6 microhenry coil shunted with a 35 MMFD capacitor.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .05 MFD | High side to Pin 6 (grid) of 7Q7. Low side to chassis. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. |
| 2 | 4 MMFD. | High side to ungrounded antenna clip. Low side to chassis. | 1620KC | " | " | A5 | " " " " |
| 3 | 4 MMFD. | " | 1400KC | 1400KC | " | A6 | " " " " |
| 4 | 4 MMFD. | " | " | Tune for maximum output. | " | A7 | Adjust for maximum output. Repeat Steps 3 & 4 until no further improvement can be made. |



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DATE 1/49-#491-10 SET #53-FOLDER #10

# PARTS LIST AND DESCRIPTIONS



## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | CROSLEY PART No. | STANDARD REPLACEMENT | | |
| 1 | RF Amp. | 7A7 | 7A7 | 8V | |
| 2 | Converter | 7Q7 | 7Q7 | 8AL | |
| 3 | IF Amp. | 7A7 | 7A7 | 8V | |
| 4 | Det.-AVC-AF | 7B6 | 7B6 | 8W | |
| 5 | Power Output | 7B5 | 7B5 | 6AE | |
| 6 | Rectifier | 5AZ4 | 5AZ4 | | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | CROSLEY PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | |
| 7A | 50 | 300 | B-136596 | AF88J‡ | UP43145D‡ | DY-2x40-450‡ | D7892 | Filter-Red |
| B | 30 | 300 | | | | | | " -Blue |
| 8 | .005 | 600 | 39001-11 | 684-005 | GT6D5 | ST-6-005 | TC-25 | Output Plate Bypass |
| 9 | .01 | 400 | 39001-13 | 484-01 | GT4S1 | ST-4-01 | TC-11 | Audio Coupling |
| 10 | .001 | 600 | 39001-7 | 684-001 | GT6D1 | ST-6-001 | TC-21 | " " |
| 11 | .01 | 400 | 39001-13 | 484-01 | GT4S1 | ST-4-01 | TC-11 | Tone Compensation |
| 12 | .005 | 600 | 39001-11 | 684-005 | GT6D5 | ST-6-005 | TC-25 | " " |
| 13 | .00025 | 600 | 39001-73 | 1468-00025 | 5W5T25 | ST-6-00025 | TC-325 | AF Plate Bypass |
| 14 | .01 | 600 | 39001-13 | 684-01 | GT6S1 | ST-6-01 | TC-11 | IF Plate Decoup. |
| 15 | .05 | 400 | 39001-17 | 484-05 | GT4S5 | ST-4-05 | TC-15 | IF Screen Bypass |
| 16 | .05 | 400 | 39001-17 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Conv. Screen Bypass |
| 17 | .05 | 200 | 39001-17 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 18 | .001 | 600 | 39001-7 | 684-001 | GT6D1 | ST-6-001 | TC-21 | RF Coupling |
| 19A | 100 | 300 | * | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Diode RF Filter-Cer. |
| B | 100 | 300 | | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 20 | 12 | 300 | C137727-52 | 1468-00001 | 5W5Q1 | MO.5-41 | 1FM-41 | Osc. Grid Cap.-Cer. |

*Items 19A & B and 29 are combined into one unit obtainable under Mfgrs. Part #B142951-2.
‡Parallel sections to obtain desired capacity and omit bypass section.

## CONTROLS

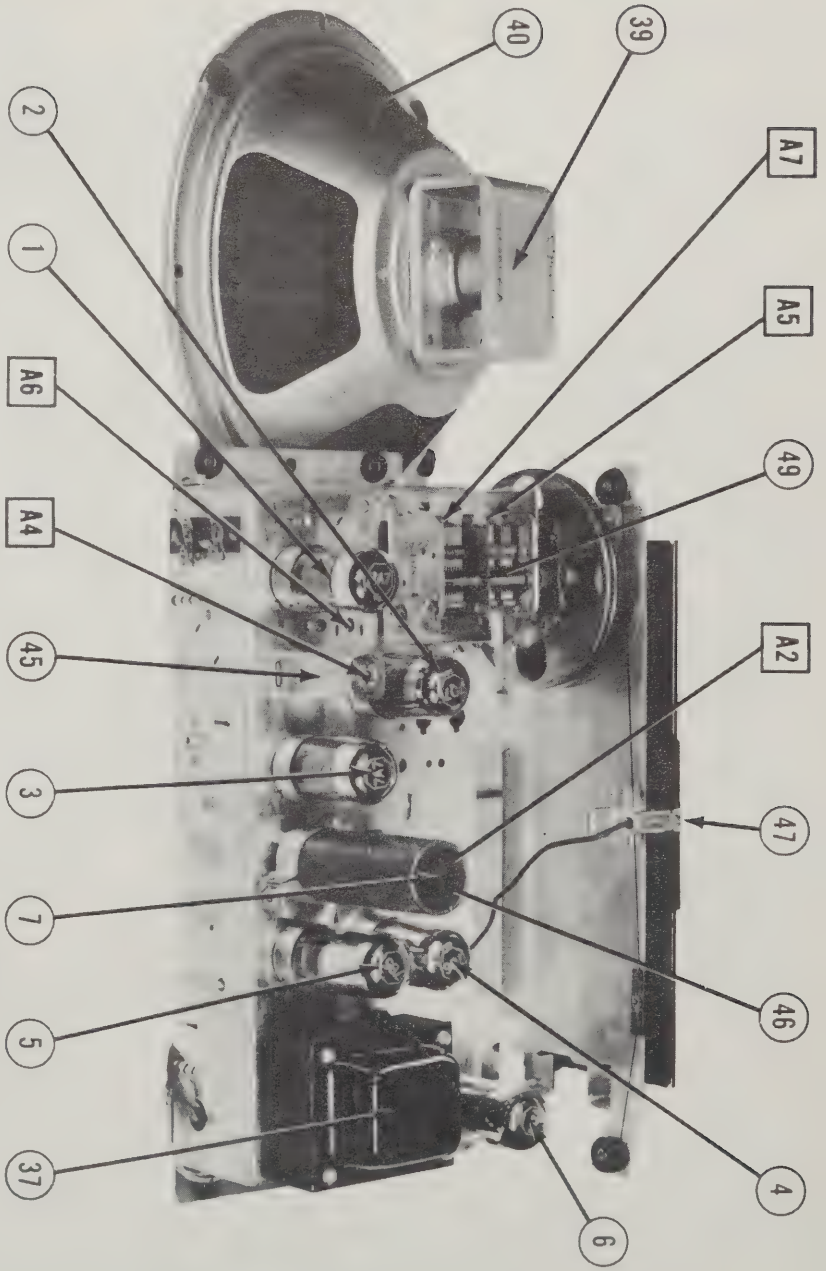
| ITEM No. | RATING | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CROSLEY PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 21A | 1 Meg. | ½ | 39368-18 | D13-137X | AT-98 | Volume Control tapped @ 300KΩ |
| B | Shaft | | 39370-2 | E | KSS-3 | Attach to 21A per instructions |
| C | Switch | | 39369-1 | 41 | SW-A | " " " " " |
| 22 | 2 Meg. | ½ | B-144346 | | | Tone Control & Phono-Radio-Switch |

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CROSLEY PART No. | IRC PART No. | |
| 23 | 2.2 Meg. | ½ | 39373-97 | BTS-2.2 Meg. | Red-Red-Grn. RF Grid |
| 24 | 1 Meg. | ½ | 39373-92 | BTS-1 Meg. | Br.-Blk.-Grn. Conv. Grid |
| 25 | 22KΩ | ½ | 39373-60 | BTS-22K | Red-Red-Or. Osc. Grid |
| 26 | 12KΩ | 2 | 39373-165 | BT-2-12K | Br.-Red-Or. Conv. Screen |
| 27 | 22KΩ | ½ | 39373-60 | BTS-22K | Red-Red-Or. Screen Dropping |
| 28 | 2200Ω | ½ | 39373-40 | BTS-2200 | Red-Red-Red IF Plate Decoup. |
| 29 | 47KΩ | ½ | * | BTS-47K | Yl.-Vi.-Or. Diode Filter |
| 30 | 2.2 Meg. | ½ | 39373-97 | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 31 | 10 Meg. | ½ | 39373-107 | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 32 | 330KΩ | ½ | 39373-84 | BTS-330K | Or.-Or.-Yl. AF Plate Load |
| 33 | 47KΩ | ½ | 39373-67 | BTS-47K | Yl.-Vi.-Or. Tone Compensation |
| 34 | 470KΩ | ½ | 39373-87 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 35 | 330Ω | ½ | 39373-23 | BW-½-330 | Or.-Or.-Br. Output Cathode |
| 36 | 1500Ω | 2 | 39372-7 | BT-2-1500 | Br.-Grn.-Red Filter |
| 50 | 27KΩ | ½ | 39373-62 | BTS-27K | Red-Vi.-Or. RF Coil Shunt |

*Items 29, 19A and 19B are combined into one unit obtainable under Part #B142951-2.

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | CROSLEY PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. |
| 37A | 117V AC @ .39A | 500V CT @ .058ADC | 4.9V AC @ 2.0A | 6.6V AC @ 1.6A | B-135102 | P-6011# | T22R02# | P-2951# |
| B | | | | | B-136597 | | | |

#Add series resistor to reduce plate voltage

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | CROSLEY PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 38A | 3900Ω | 3.9Ω | 260Ω | .3Ω | B-136131-2 | A-3823 | T22S87 | A-2902 | |
| B | 6800Ω | 3.9Ω | 900Ω | .75Ω | B-136598 | A-3878 | T22S47 | A-2931 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | CROSLEY PART No. | JENSEN PART No. | QUAM PART No. | |
| 39 | FIELD | VC IMP. | C-143556A | ST-120† Mod. P10-S | 10A31 | Original Part #138762-5<br>†Replace output transformer to match 6-8Ω voice coil. |
| | PM | 3.9Ω | | | | |
| 40 | CONE DIA. | VC DIA. | | | | |
| | 9½" | 1" | | | | |

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| | | PRI. | SEC. | CROSLEY PART No. | MEISSNER PART No. |
| 41 | Loop Ant. | | .5Ω | AW-144064 | |
| 42 | Ant. Load. Coil | | 7Ω | AW-139604 | |
| 43 | RF Coil | 137Ω | 11.7Ω | AW-137800 | 14-1057 |
| 44 | Osc. Coil | | 12.3Ω | AW-137724 | 14-1060 |
| 45 | Input IF | 14Ω | 14Ω | AC-137933 | 16-6678 |
| 46 | Output IF | 14Ω | 14Ω | AC-137934 | 16-6678 |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | CROSLEY PART No. | | |
| 47 | Bayonet | 6-8 | 0.15 | Brown | W-48858 | | Type #47 |

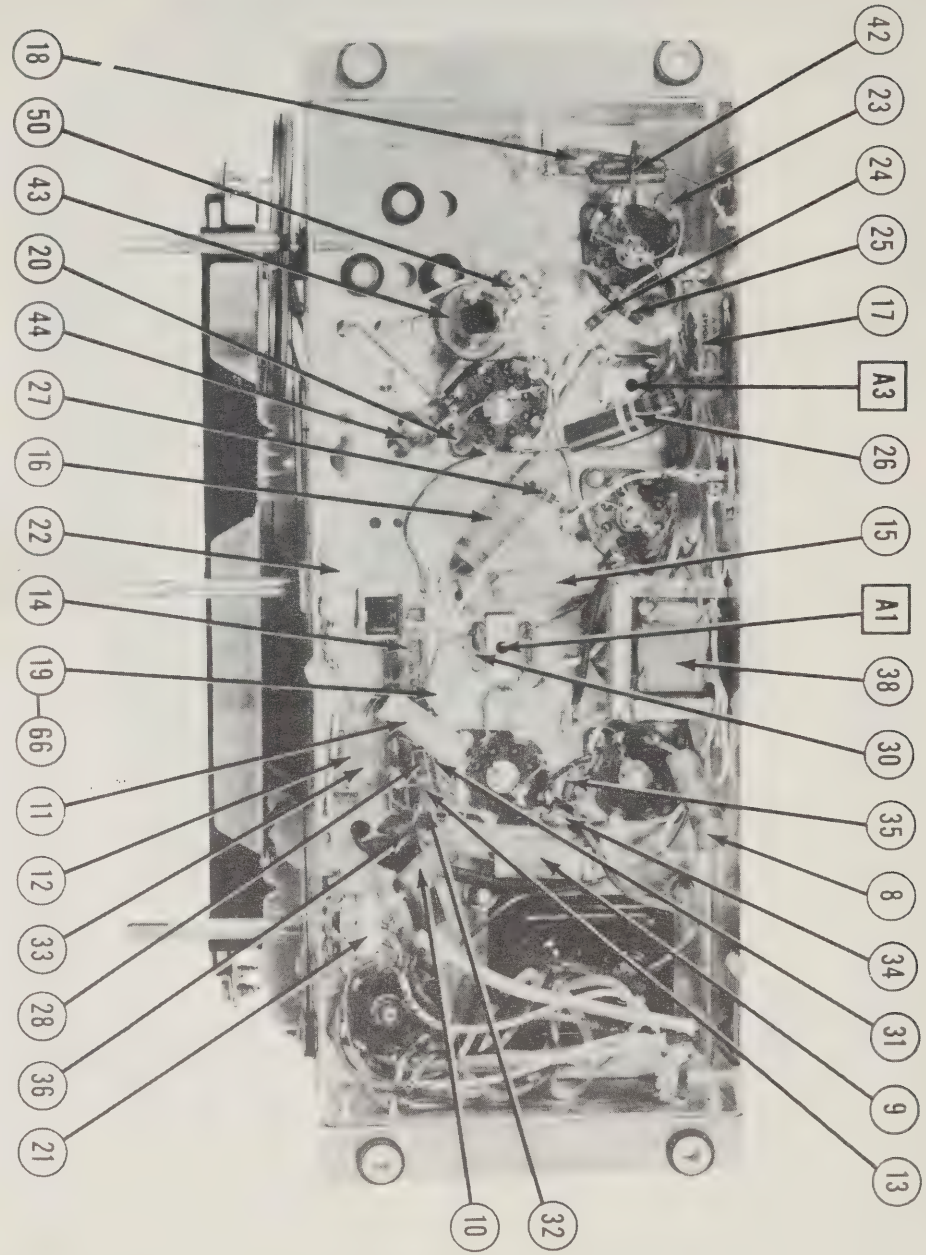
## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA | | REMARKS |
|---|---|---|---|
| | CROSLEY PART No. | ASTATIC PART No. | |
| 48 | | L-75 | |

## MISCELLANEOUS

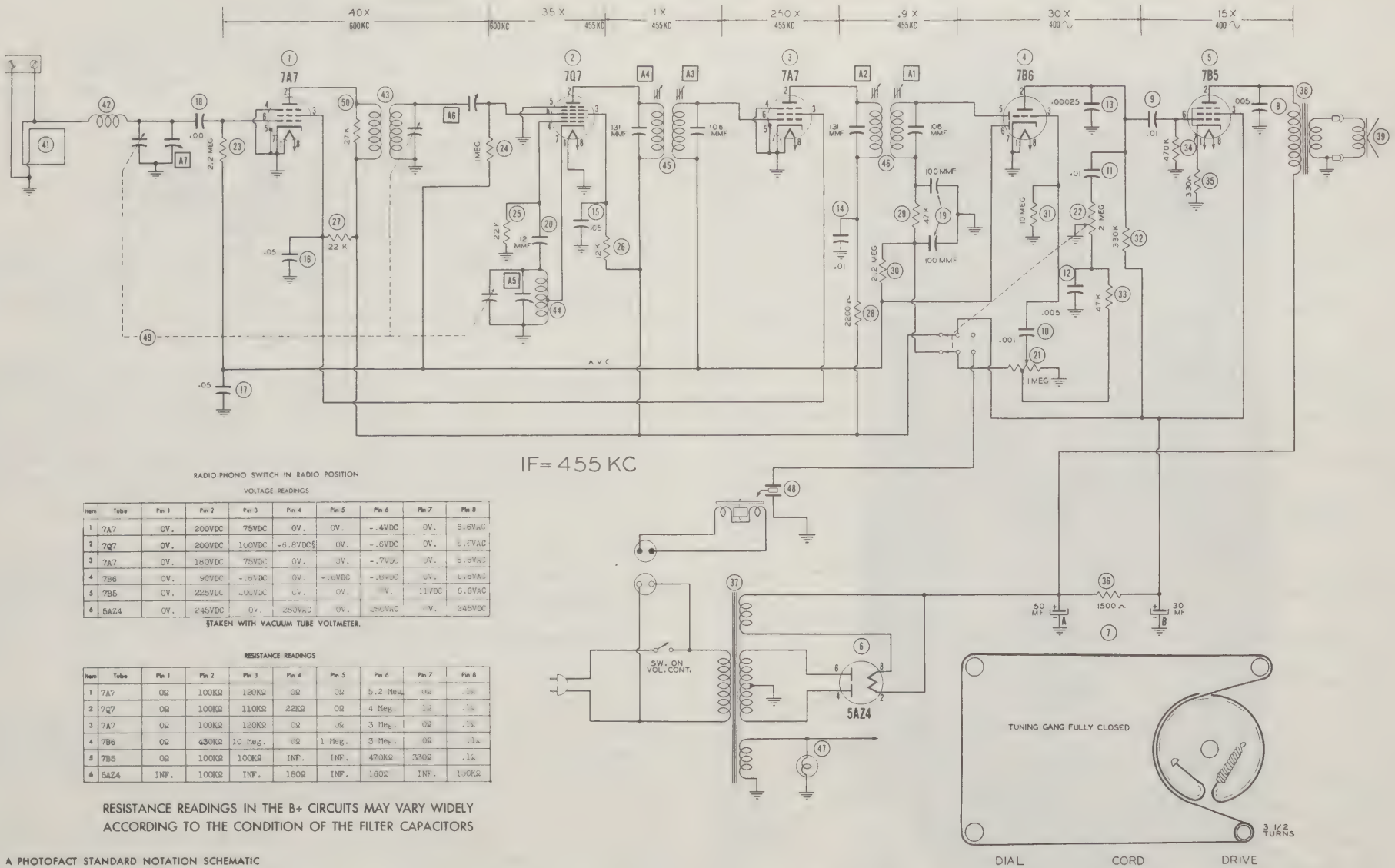
| ITEM No. | PART NAME | CROSLEY PART No. | NOTES |
|---|---|---|---|
| 49 | 3 Gang Var. Cap. | B-137972 | (23-327MF, 11-207MMF, 12-85MMF) |
| A6 | Trimmer | W-132267-1 | RF Adj. |
| | Cabinet | R-144134 | Model 9-209 |
| | " | R-144182 | Model 9-212M |
| | Dial Glass | C-143384 | |
| | Knob | B-144349 | |
| | Dial Pointer | B-143407 | |

# CHASSIS—BOTTOM VIEW






CROSLEY MODELS 9-209, 9-212M




RADIO-PHONO SWITCH IN RADIO POSITION

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7A7 | 0V. | 200VDC | 75VDC | 0V. | 0V. | -.4VDC | 0V. | 6.6VAC |
| 2 | 7Q7 | 0V. | 200VDC | 100VDC | -6.8VDC§ | 0V. | -.6VDC | 0V. | 6.6VAC |
| 3 | 7A7 | 0V. | 180VDC | 75VDC | 0V. | 0V. | -.7VDC | 0V. | 6.6VAC |
| 4 | 7B6 | 0V. | 90VDC | -.8VDC | 0V. | -.8VDC | -.8VDC | 0V. | 6.6VAC |
| 5 | 7B5 | 0V. | 225VDC | .8VDC | 0V. | 0V. | 0V. | 11VDC | 6.6VAC |
| 6 | 5AZ4 | 0V. | 245VDC | 0V. | 280VAC | 0V. | 280VAC | 0V. | 245VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7A7 | 0Ω | 100KΩ | 120KΩ | 0Ω | 0Ω | 5.2 Meg. | 0Ω | .1Ω |
| 2 | 7Q7 | 0Ω | 100KΩ | 110KΩ | 22KΩ | 0Ω | 4 Meg. | 1Ω | .1Ω |
| 3 | 7A7 | 0Ω | 100KΩ | 120KΩ | 0Ω | 0Ω | 3 Meg. | 0Ω | .1Ω |
| 4 | 7B6 | 0Ω | 430KΩ | 10 Meg. | 0Ω | 1 Meg. | 3 Meg. | 0Ω | .1Ω |
| 5 | 7B5 | 0Ω | 100KΩ | 100KΩ | INF. | INF. | 470KΩ | 330Ω | .1Ω |
| 6 | 5AZ4 | INF. | 100KΩ | INF. | 180Ω | INF. | 180Ω | INF. | 100KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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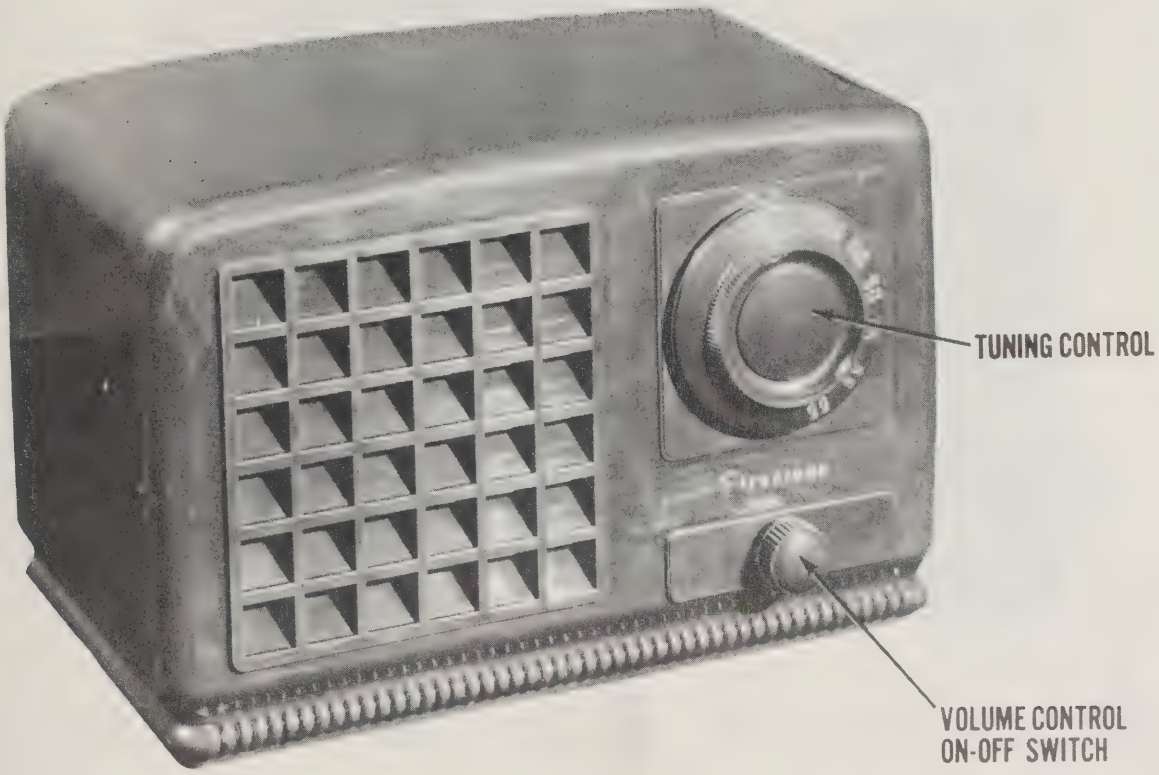
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FIRESTONE MODEL
4-A-68 (Code #332-8-143653)




FIRESTONE MODEL
4-A-68 (Code #332-8-143653)

FIRESTONE MODEL 4-A-68

| | |
|---|---|
| TRADE NAME | Firestone, Model 4-A-68 (Code #332-8-143653) |
| SUPPLIER | The Firestone Tire & Rubber Co., Akron, Ohio |
| TYPE SET | AC-DC Operated Superheterodyne Receiver with Loop Antenna |
| TUBES (FIVE) | Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 105-125 Volts AC-DC |
| TUNING RANGE—BROADCAST | 540-1630KC RATING .25 Amp. @ 117 Volts AC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to large stator of tuning cap. Low side to B-. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation. |
| 2 | 250 MMFD | " | 1630KC | " | " | A5 | Adjust for maximum output. |
| 3 | | Loop | 1400KC | Tune for maximum output. | " | A6 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A6 for maximum output. |

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DATE 1/49-#491-11 SET #53-FOLDER #11

# PARTS LIST AND DESCRIPTIONS

FIRESTONE MODEL 4-A-6U

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: FIRESTONE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 12SA7GT | 12SA7GT | 8AD | |
| 2 | IF Amp. | 12SK7GT | 12SK7GT | 8N | |
| 3 | Det.-AVC-AF | 12SQ7GT | 12SQ7GT | 8Q | |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: FIRESTONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 6A | 30 | 150 | B18-283 | PRSA150/30-30 | EDL3315 | DSB-2x30-150 | TA-330 | Filter-Red |
| B | 30 | 150 | | | | | | " -Yellow |
| 7 | .05 | 400 | A16-158 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Filter |
| 8 | .05 | 400 | A16-158 | 484-05 | GT4S5 | ST-4-05 | 72P1 | Line Isolation |
| 9 | .002 | 600 | A16-155 | 684-002 | GT6D2 | ST-6-002 | TC-22 | Output Plate Bypass |
| 10 | .005 | 600 | A16-153 | 684-005 | GT6D5 | ST-6-005 | TC-25 | Audio Coupling |
| 11 | .005 | 600 | A16-153 | 684-005 | GT6D5 | ST-6-005 | TC-25 | " " |
| 12 | .05 | 200 | A16-152 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 13 | .05 | 200 | A16-152 | 484-05 | GT2S5 | ST-4-05 | TC-15 | " " |
| 14 | .02 | 400 | A16-150 | 484-02 | GT4S2 | ST-4-02 | TC-12 | Osc. Tuning Cap. Iso. |
| 15 | 250 | 500 | A15-176 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | AF Plate Bypass |
| 16 | 250 | 500 | A15-176 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Diode RF Filter |
| 17 | 50 | 500 | A15-175 | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | Osc. Grid Cap. |
| 18 | 250 | 500 | A15-176 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | RF Coupling |

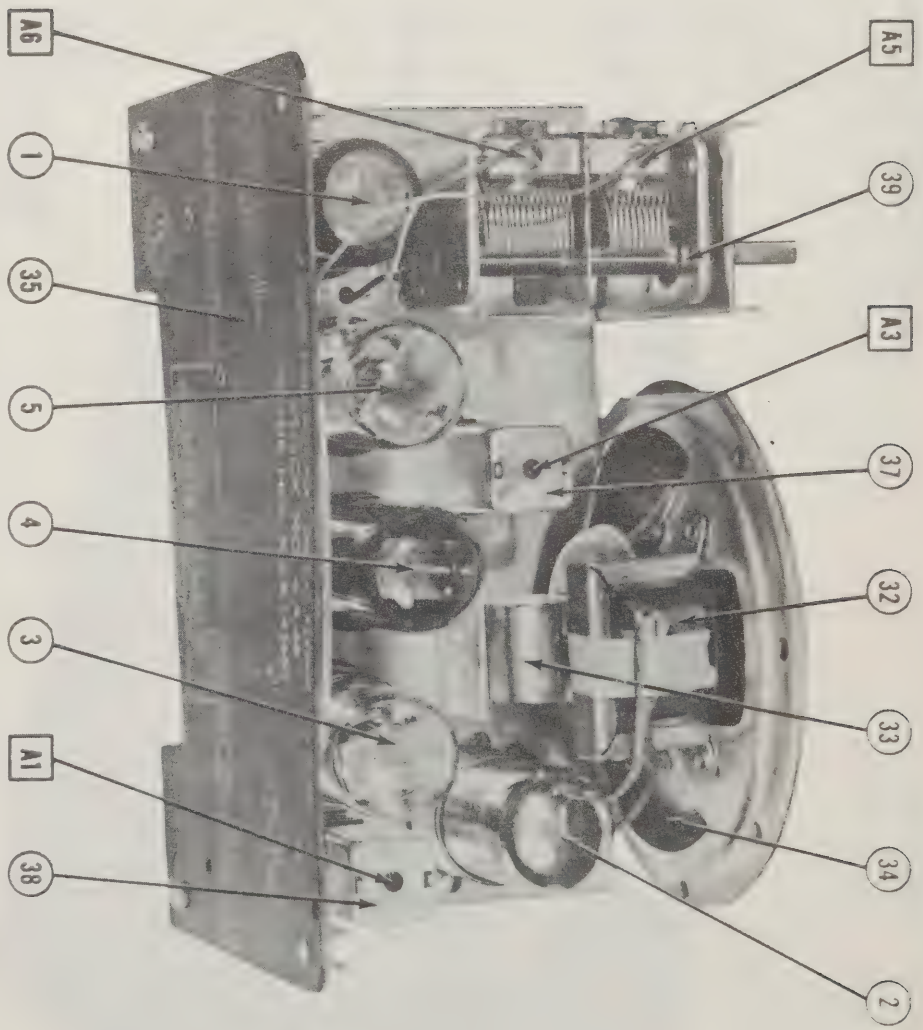
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: FIRESTONE PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 19A | 1 Meg. | ½ | A24-174 | | 15/16-63-Z | Volume Control |
| B | Switch | | Not Req. | | SPST Sw. | Attached at factory. |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: FIRESTONE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 20 | 22KΩ | ½ | A60-659 | BTS-22K | Red-Red-Or. Osc. Grid |
| 21 | 1 Meg. | ½ | A60-668 | BTS-1 Meg. | Br.-Blk.-Grn. Conv. Grid |
| 22 | 2.2 Meg. | ½ | A60-684 | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 23 | 47KΩ | ½ | A60-685 | BTS-47K | Yl.-Vi.-Or. Diode Filter |
| 24 | 10 Meg. | ½ | A60-663 | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 25 | 470KΩ | ½ | A60-662 | BTS-470K | Yl.-Vi.-Yl. AF Plate Load |
| 26 | 470KΩ | ½ | A60-662 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 27 | 150Ω | ½ | A60-686 | BW-½-150 | Br.-Grn.-Br. Output Cathode |
| 28 | 10KΩ | 1 | A60-698 | BTA-10K | Br.-Blk.-Or. Bias |
| 29 | 1000Ω | 1 | A60-732 | BTA-1000 | Br.-Blk.-Red Filter |
| 30 | 27Ω | ½ | A60-690 | BW-½-27 | Red-Vi.-Blk. Rectifier Ballast |
| 31 | 470KΩ | ½ | A60-662 | BTS-470K | Yl.-Vi.-Yl. Line Isolation |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | FIRESTONE PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 32 | 1600Ω | 3.7Ω | 140Ω | .6Ω | Part of B79-363 | A-3865 | T22S45 | A-2928 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | FIRESTONE PART No. | JENSEN PART No. | QUAM PART No. | |
| 33 | FIELD<br>PM | VC IMP.<br>3.7Ω | B79-363 | ST-105†<br>Mod. P5-X | 5A07† | †Fabricate new mounting bracket. |
| 34 | CONE DIA.<br>4-3/4" | VC DIA.<br>9/16" | | | | |

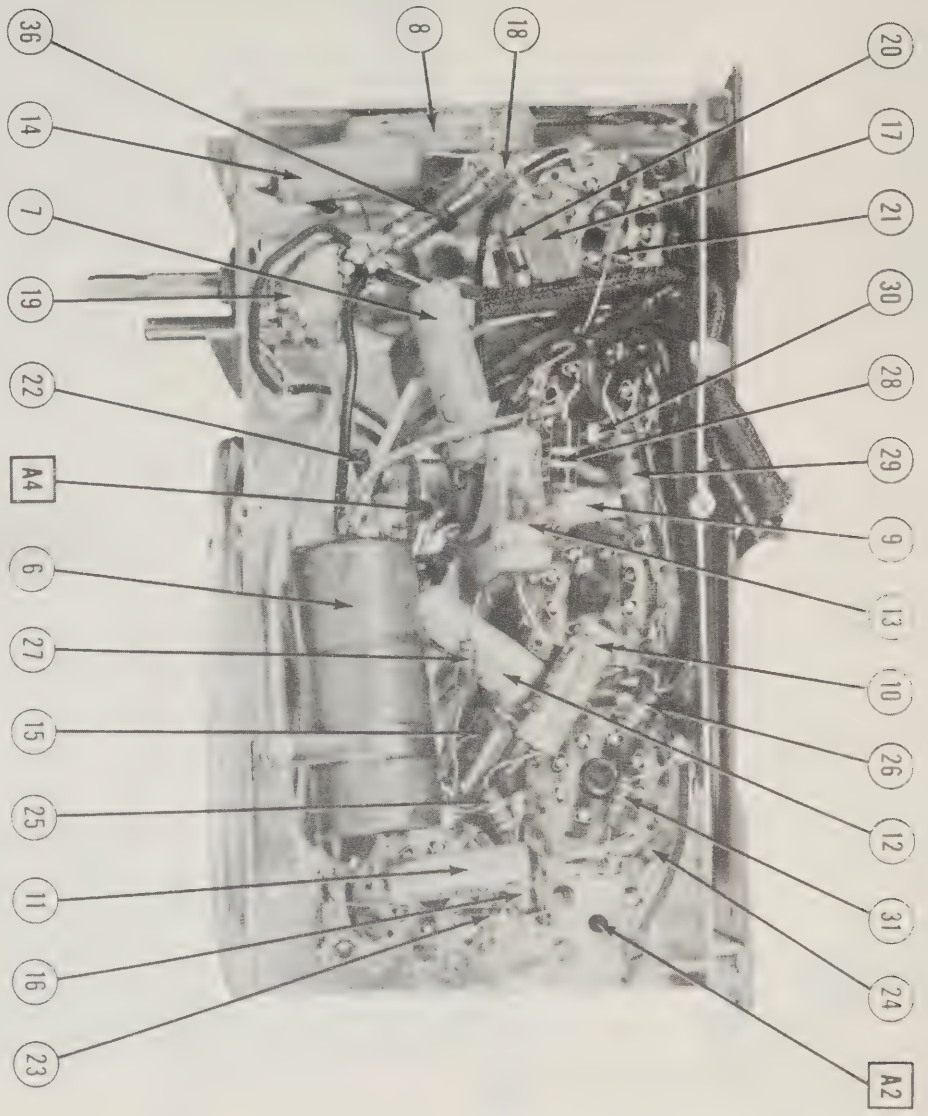
## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | FIRESTONE PART No. | MEISSNER PART No. | |
| 35 | Loop Ant. | | 1.3Ω | SB82-56 | | |
| 36 | Osc. Coil | | 5Ω | B10-502 | | |
| 37 | Input IF | 22Ω | 22Ω | A10-479 | 16-6678 | |
| 38 | Output IF | 22Ω | 22Ω | A10-479 | 16-6678 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | FIRESTONE PART No. | NOTES |
|---|---|---|---|
| 39 | 2 Gang Var. Cap. | B19-199 | (35-462MMF, 31-196MMF) |
| | Cabinet | C42-449 | |
| | Knob | C52-274 | Tuning |
| | " | A52-275 | Volume |

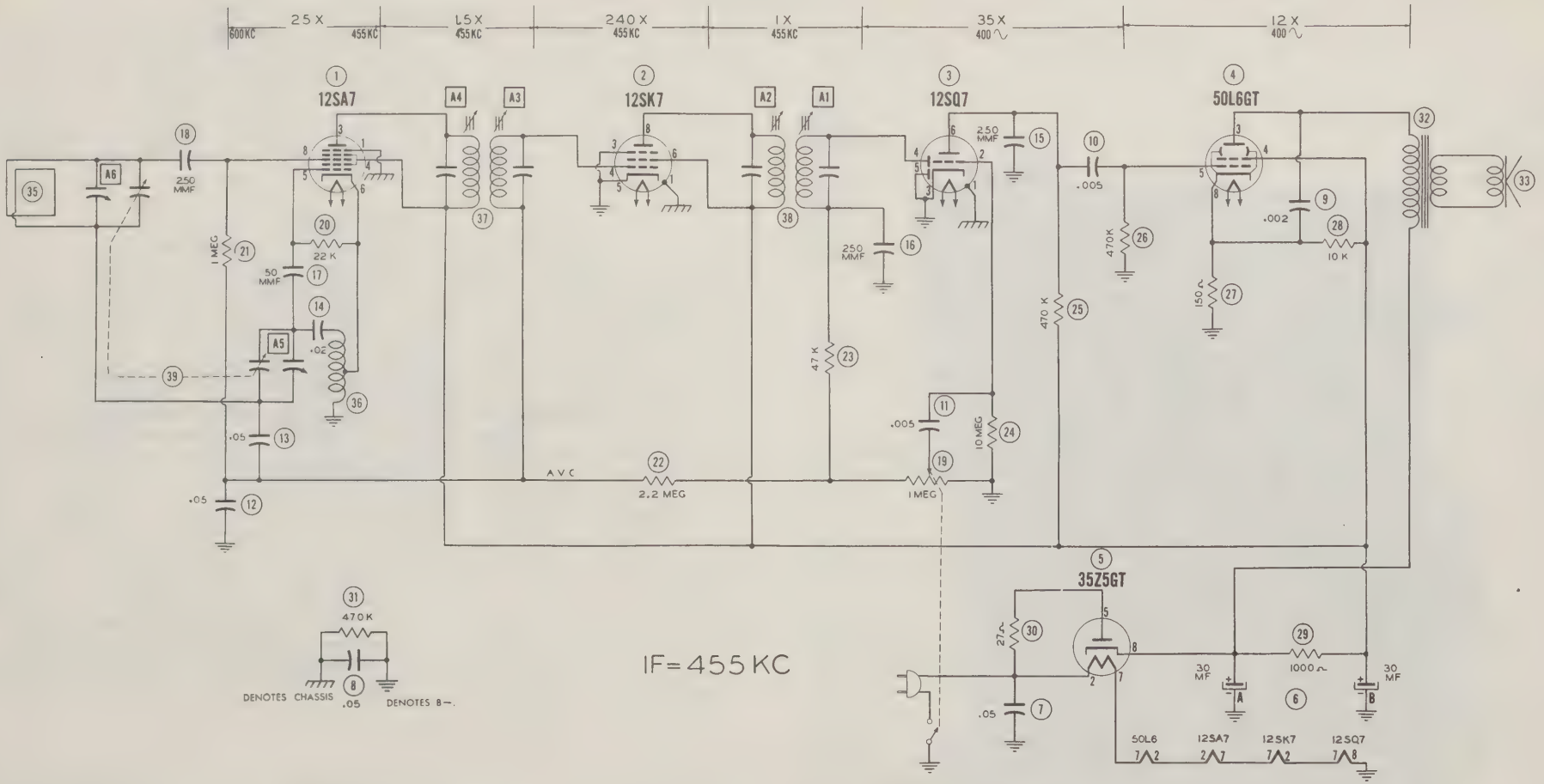
# CHASSIS—BOTTOM VIEW




DATE 1/49-#691-11 SET #53-FOLDER #11



FIRESTONE MODEL 4-A-63




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 0V. | 12VAC | 92VDC | 92VDC | -7.2VDC§ | 0V. | 24VAC | -.2VDC |
| 2 | 12SK7GT | 0V. | 24VAC | 0V. | -.5VDC | 0V. | 92VDC | 37VAC | 92VDC |
| 3 | 12SQ7GT | 0V. | -.5VDC | 0V. | -.5VDC | 0V. | 50VDC | 0V. | 12VAC |
| 4 | 50L6GT | 0V. | 85VAC | 118VDC | 92VDC | 0V. | 0V. | 37VAC | 6.7VDC |
| 5 | 35Z5GT | 0V. | 117VAC | 106VAC | 117VAC | 113VAC | 0V. | 85VAC | 120VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 470KΩ | 12Ω | 10KΩ | 10KΩ | 22KΩ | 1Ω | 22Ω | 4.2 Meg. |
| 2 | 12SK7GT | 470KΩ | 22Ω | 0Ω | 3.2 Meg. | 0Ω | 10KΩ | 36Ω | 10KΩ |
| 3 | 12SQ7GT | 470KΩ | 10 Meg. | 0Ω | 1 Meg. | 0Ω | 480KΩ | 0Ω | 12Ω |
| 4 | 50L6GT | INF. | 85Ω | 10KΩ | 10KΩ | 470KΩ | INF. | 36Ω | 150Ω |
| 5 | 35Z5GT | INF. | 120Ω | 110Ω | 120Ω | 150Ω | 3.2 Meg. | 85Ω | 10KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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491-11

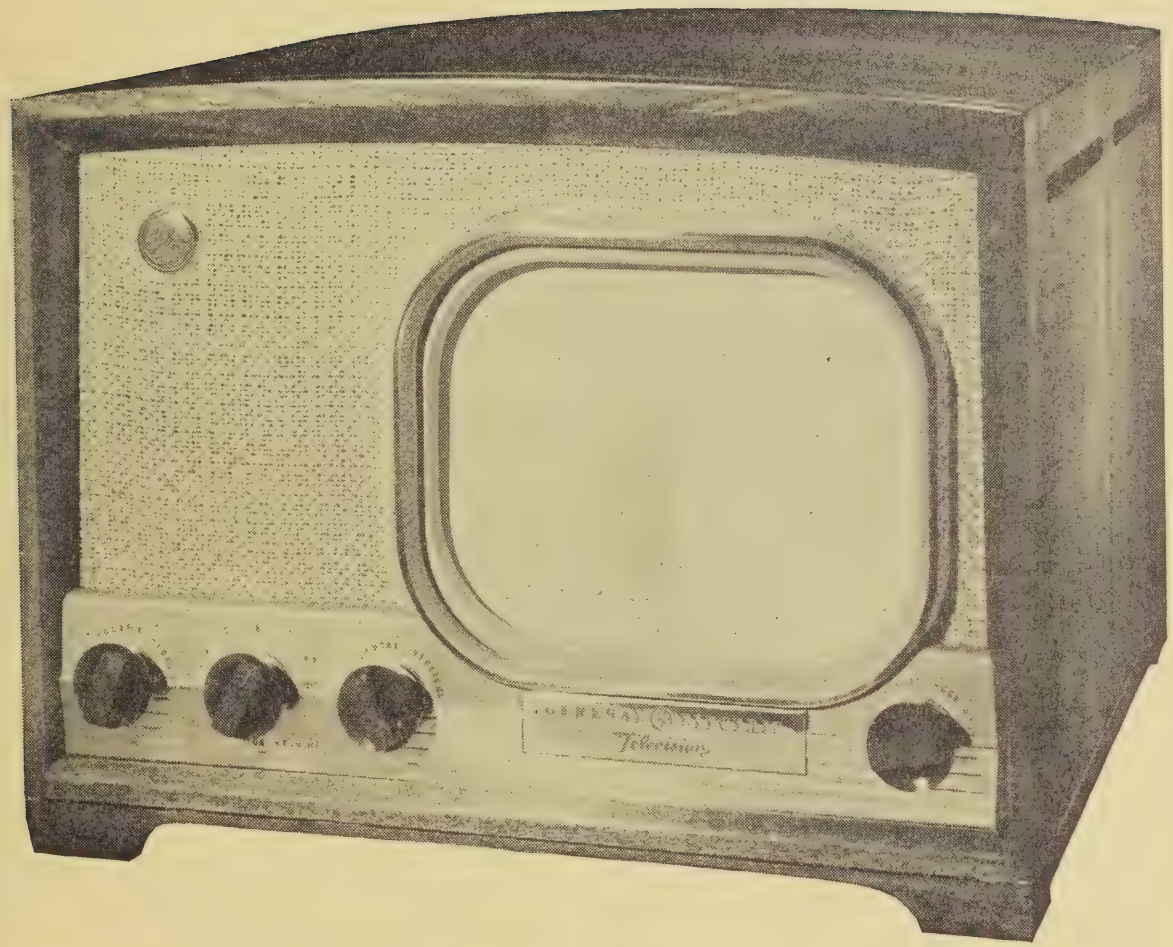
**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

PHOTOFACT* Folder

*TRADE MARK

# GENERAL ELECTRIC MODEL 810



GENERAL ELECTRIC MODEL 810

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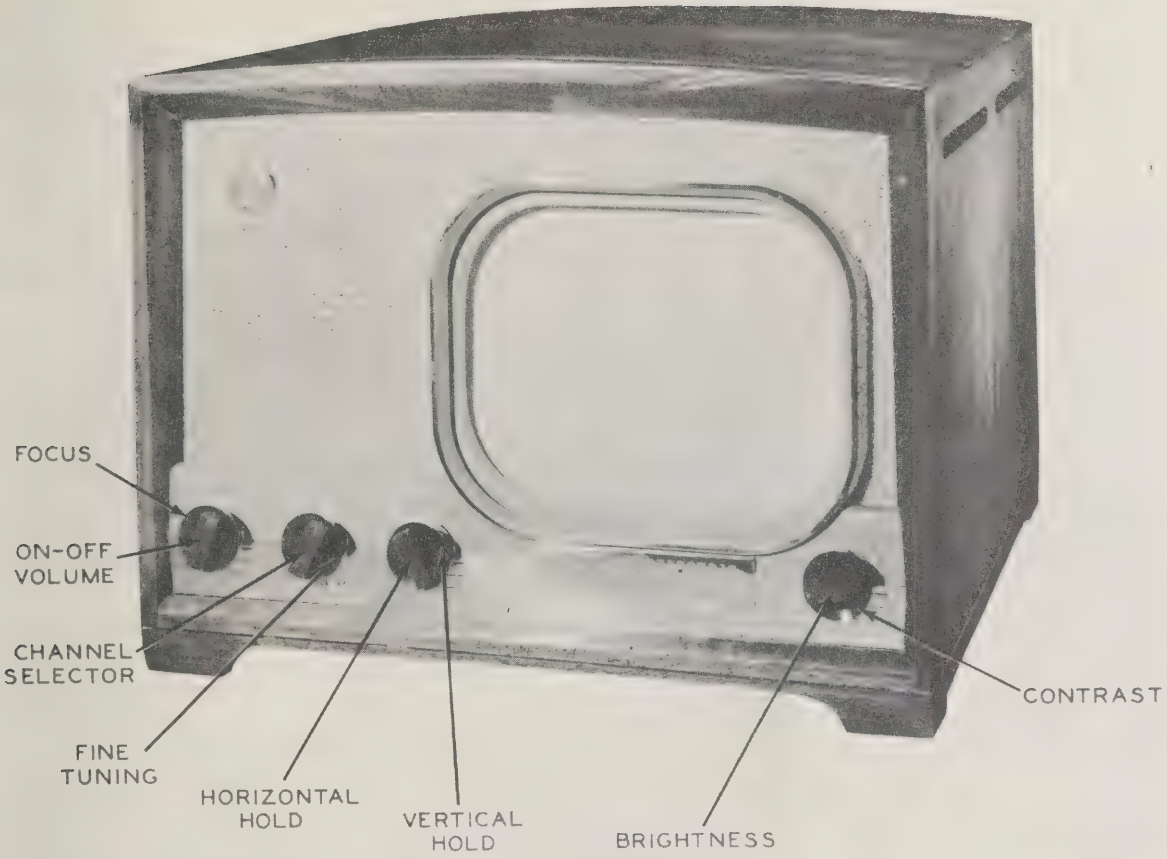
**Date 1/49—No. 491-12 Set No. 53—Folder No. 12**




GENERAL ELECTRIC
MODEL 810

GENERAL ELECTRIC MODEL 810

| | |
|---|---|
| **TRADE NAME** | General Electric, Model 810 |
| **MANUFACTURER** | General Electric Co., Electronics Dept., Electronics Park, Syracuse, N. Y. |
| **TYPE SET** | Television Receiver |
| **TUBES** | Twenty-Two |
| **POWER SUPPLY** | 117 Volts, 60 Cycle AC RATING 2 Amps. @ 117 Volts AC |
| **TUNING RANGE—** | Channels 2 through 13 |

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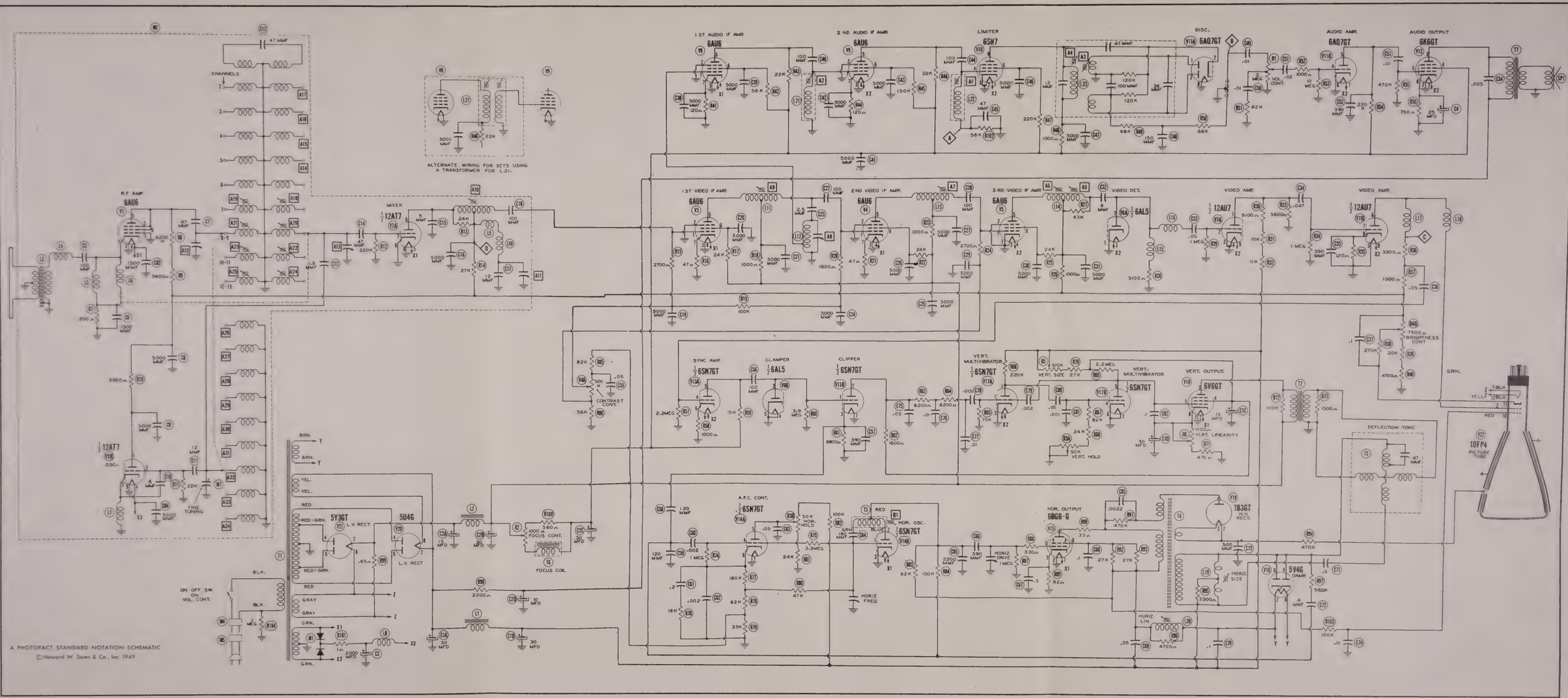
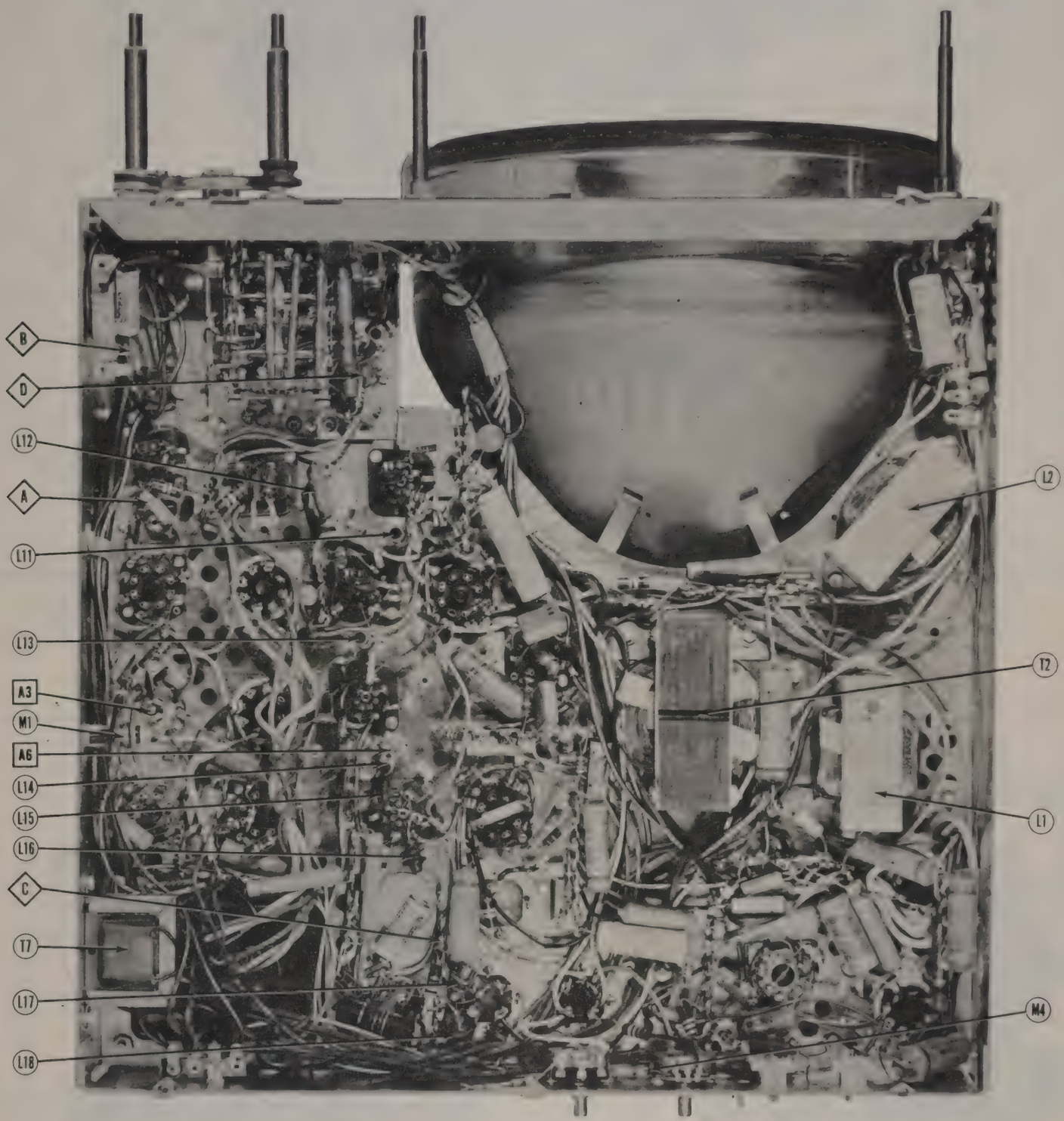
DATE 1/49-#491-12 SET #53-FOLDER #12




GENERAL ELECTRIC
MODEL 810

CHASSIS-TOP VIEW




CHASSIS-BOTTOM VIEW-TRANS, INDUCTOR AND ALIGNMENT IDENTIFICATION

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: GENERAL ELECTRIC PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | NOTES |
|---|---|---|---|---|---|
| V1 | RF Amp. | 6AU6 | 6AU6 | 7BK | |
| V2 | Mixer | 12AT7 | 12AT7 | 9A | |
| V3 | 1st V. IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V4 | 2nd V. IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V5 | 3rd V. IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V6 | Video Det.-Clamper | 6AL5 | 6AL5 | 6BT | |
| V7 | Video Amp. | 12AU7 | 12AU7 | 9A | |
| V8 | 1st A. IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V9 | 2nd A. IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V10 | Limiter | 6SH7 | 6SH7 | 8BK | |
| V11 | Disc.-Audio Amp. | 6AQ7GT | 6AQ7GT | | |
| V12 | Audio Output | 6K6GT | 6K6GT | 7S | |
| V13 | Sync. Amp.-Clipper | 6SN7GT | 6SN7GT | 8BD | |
| V14 | AFC Cont.-Hor. Osc. | 6SN7GT | 6SN7GT | 8BD | |
| V15 | Hor. Output | 6BG6G | 6BG6G | 5BT | |
| V16 | Damping | 5V4G | 5V4G | 5L | |
| V17 | Vert. Mult. | 6SN7GT | 6SN7GT | 8BD | |
| V18 | Vert. Output | 6V6GT | 6V6GT | 7AC | |
| V19 | H. V. Rect. | 1B3GT | 1B3GT | 3C | |
| V20 | L. V. Rect. | 5U4G | 5U4G | 5T | |
| V21 | L. V. Rect. | 5Y3GT | 5Y3GT | 5T | |
| V22 | Pict. Tube | 10FP4 | 10FP4 | | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: GENERAL ELECT. PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1A | 30 | 450 | RCE-070 | AF862J4A | UP9D919-1 | | D10308 | ◓ Filter |
| B | 30 | 450 | | | | | | ■ " |
| C | 15 | 450 | | | | | | ▲ Vert. Out. Screen |
| D | 30 | 50 | | | | | | Vert. Out. Cath. |
| C2A | 15 | 450 | RCE-071 | | UP9D984-1 | | D10301 | ◓ Filter |
| B | 30 | 450 | | | | | | ■ " |
| C | 30 | 450 | | | | | | ▲ " |
| D | 10 | 450 | | | | | | " |
| C3 | 2000 | 6 | RCE-083 | PRS6-2000 | BRH620 | DY-2000-15 | D12115 | " |
| C4 | 25 | 25 | UCE-065 | PRS25-25 | BR252A | M-25-25 | TA-25 | Audio Out. Cath. Byp. |
| C5 | 100 | | RCW-1047 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | RF Coupling Cer |
| C6 | 1500 | | RCW-026 | | | | | RF Cath. " |
| C7 | 47 | | RCW-1052 | | | | | RF Coupling " |
| C8 | 5000 | | RCW-3014 | | | | | RF Bypass " |
| C9 | 5000 | | RCW-3014 | | | | | Osc. Plate Byp. " |
| C10 | 6 | | RCW-2030 | | | | | Osc. Feedback " |
| C11 | 12 | | RCW-2006 | | | | | Osc. Grid " |
| C12 | 47 | | RCW-2010 | | | | | Fixed Trimmer " |
| C13 | 1.5 | | RCW-1045 | | | | | Osc. Coupling " |
| C14 | 47 | | RCW-1052 | | | | | RF Coupling " |
| C15 | 5 | | RCW-2035 | | | | | Fixed Trimmer " |
| C16 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Conv. Plate Decoup. " |
| C17 | 12 | 500 | UCU-1506 | | | | | Fixed Padder |
| C18 | 100 | | RCW-1047 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | V. IF Coup. " |
| C19 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Bias Filter " |
| C20 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 1st V. IF Screen Byp. " |
| C21 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 1st V. IF Plate Decoup. " |
| C22 | 100 | | RCW-1047 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Video IF Coupling " |
| C23 | 2.5 | | RCW-3017 | | | | | Sound IF Coupling " |
| C24 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Bias Filter " |
| C25 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | RF Bypass " |
| C26 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 2nd V. IF Screen Byp. " |
| C27 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 2nd V. IF Plate Decoup. " |
| C28 | 100 | | RCW-1047 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Video IF Coupling " |
| C29 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Bias Filter " |
| C30 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 3rd V. IF Screen Byp. " |
| C31 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 3rd V. IF Plate Decoup. " |
| C32 | 6 | | RCW-1002 | | | | | IF Coupling " |
| C33 | .05 | 600 | UCC-635 | 684-05 | DT6S5 | ST-6-05 | TM-15 | Video Coupling " |
| C34 | .047 | 600 | RCN-014 | 684-05 | DT6S5 | ST-6-05 | TM-15 | " " |
| C35 | 390 | 500 | UCU-1542 | 1468-0004 | 5W5T4 | MO.5-34 | 1FM-34 | Video Amp. Cath. |
| C36 | .05 | 600 | UCC-635 | 684-05 | DT6S5 | ST-6-05 | TM-15 | Sync. Coupling |
| C37 | .1 | 600 | UCC-640 | 684-.1 | DT6P1 | ST-6-1 | TM-1 | Picture Tube Cath. |
| C38 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 1st S. IF Cath. Byp.-Cer. |
| C39 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 1st S. IF Screen Byp. " |
| C40 | 100 | 500 | UCU-1528 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Sound IF Coupling " |
| C41 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | RF Bypass " |
| C42 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 2nd S. IF Cath. Byp. " |
| C43 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 2nd S. IF Screen Byp. " |
| C44 | 100 | 500 | UCU-1528 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Sound IF Coupling |
| C45 | 47 | | RCW-1052 | 1468-00005 | 5W525 | MO.5-45 | 1FM-45 | Lim. Grid Filter " |
| C46 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Lim. Screen Byp. " |
| C47 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Lim. Plate Decoup. " |
| C48 | 150 | 500 | UCU-1532 | 1468-00015 | 5W5T15 | | 1FM-315 | De-emphasis |
| C49 | .01 | 600 | UCC-630 | 684-01 | DT6S1 | ST-6-01 | TM-11 | Audio Coupling |
| C50 | .01 | 600 | UCC-630 | 684-01 | DT6S1 | ST-6-01 | TM-11 | Tone Comp. |
| C51 | .02 | 600 | UCC-631 | 684-02 | DT6S2 | ST-6-02 | TM-12 | Audio Coupling |
| C52 | 390 | 500 | UCU-1542 | 1468-0004 | 5W5T4 | MO.5-34 | 1FM-34 | Audio Plate Bypass |
| C53 | .01 | 600 | UCC-630 | 684-01 | DT6S1 | ST-6-01 | TM-11 | Audio Coupling |
| C54 | .005 | 600 | UCC-625 | 684-005 | DT6D5 | ST-6-005 | TM-25 | Output Plate Bypass |
| C55 | .05 | 600 | UCC-635 | 684-05 | DT6S5 | ST-6-05 | TM-15 | Contr. Cont. Bypass |
| C56 | 100 | 500 | UCU-1528 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Sync. Coupling |
| C57 | 390 | 500 | UCU-1542 | 1468-0004 | 5W5T4 | MO.5-34 | 1FM-34 | Clip Cath. |
| C58 | 120 | 500 | UCU-1530 | | | | | Hor. Sync. Coup. |
| C59 | 120 | 500 | UCU-1530 | | | | | Voltage Divider |
| C60 | .002 | 600 | UCC-621 | 684-002 | DT6D2 | ST-6-002 | TM-22 | Sync. Coupling |
| C61 | .2 | 600 | UCC-014 | 684-.2 | DT6P2 | ST-6-2 | TC-2 | AFC Filter |
| C62 | .002 | 600 | UCC-621 | 684-002 | DT6D2 | ST-6-002 | TM-22 | " " " |
| C63 | .05 | 600 | UCC-635 | 684-05 | DT6S5 | ST-6-05 | TM-15 | AFC Plate Byp. |
| C64 | 140 | 500 | UCU-2534 | | | | | Hor. Osc. Grid |
| C65 | 2200 | | UCU-2560 | | | | | Hor. Discharge |
| C66 | 390 | 500 | UCU-1542 | 1468-0004 | 5W5T4 | MO.5-34 | 1FM-34 | Hor. Sync. Coup. |
| C67 | .5 | 200 | RCC-016 | 484-.5 | DT4P5 | ST-2-5 | TC-5 | Hor. Out. Cath. |
| C68 | .1 | 600 | UCC-640 | 684-.1 | DT6P1 | ST-6-1 | TM-1 | Hor. Out. Screen |
| C69 | .05 | 600 | UCC-635 | 684-05 | DT6S5 | ST-6-05 | TM-15 | Damper Filter " |
| C70 | .1 | 600 | UCC-640 | 684-.1 | DT6P1 | ST-6-1 | TM-1 | " " " |
| C71 | .5 | 200 | RCC-016 | 484-.5 | DT4P5 | ST-2-5 | TC-5 | Hor. Coupling |
| C72 | 4 | 800 | RCN-020 | | | | | AFC Coupling |
| C73 | 500 | 20000 | RCN-011 | | | | | H. V. Filter |
| C74 | .01 | 600 | UCC-630 | 684-01 | DT6S1 | ST-6-01 | TM-11 | Acc. Anode Byp. |
| C75 | .05 | 600 | UCC-635 | 684-05 | DT6S5 | ST-6-05 | TM-15 | Integrating Net. |
| C76 | .01 | 600 | UCC-630 | 684-01 | DT6S1 | ST-6-01 | TM-11 | " " |
| C77 | .01 | 600 | UCC-630 | 684-01 | DT6S1 | ST-6-01 | TM-11 | " " |
| C78 | .001 | 600 | UCC-620 | 684-001 | DT6D1 | ST-6-001 | TM-21 | Vert. Sync. Coup. |
| C79 | .002 | 600 | UCC-621 | 684-002 | DT6D2 | ST-6-002 | TM-22 | Vert. M.V. Feedback |
| C80A | .062 | 600 | RCC-095 | | | | | " " " " |
| B | .05 | 600 | UCC-635 | 684-05 | DT6S5 | ST-6-05 | TM-15 | " " " " |
| C81 | .001 | 600 | UCC-620 | 684-001 | DT6D1 | ST-6-001 | TM-21 | Vert. M.V. Grid |
| C82 | .1 | 600 | UCC-640 | 684-.1 | DT6P1 | ST-6-1 | TM-1 | Vert. Discharge |
| C83 | 1500 | | RCW-026 | 1467-0015 | 1W5D15 | | 1FM-215 | Fil. Bypass -Cer. |
| C84 | 5000 | | RCW-3014 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | " " |
| C85 | .0022 | 1000 | RCN-019 | | | | | Pulse Coupling |

*May be used in some models.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: GENERAL ELECTRIC PART No. | CLAROSTAT PART No. | IRC PART No. | | NOTES |
|---|---|---|---|---|---|---|---|
| R1 | 2 Meg. | ½ | RRC-091 | | | | Volume & On-Off Switch-Tap @ 500KΩ |
| R2 | 10KΩ | 4 | RRC-088 | 10-1000 | | | Focus |
| R3A | 50KΩ | ½ | RRC-090 | | | | Vertical Hold } Dual Control |
| B | 50KΩ | ½ | | | | | Horizontal Hold } |
| R4A | 500KΩ | ½ | RRC-089 | | | | Contrast } Dual Control |
| B | 750KΩ | ½ | | | | | Brightness } |
| R5A | 100KΩ | ½ | RRC-087 | AM-43-8 | D11-128 | | Vertical Size |
| B | Shaft | | | X88-3 | E | | Attach to R5A per instructions |
| R6 | 1000Ω | 2 | RRC-086 | 42-1000 | W-1000 | | Vertical Linearity |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: GENERAL ELECTRIC PART No. | IRC PART No. | IDENTIFICATION CODES (All Resistors ±10% Tolerance Unless Otherwise Stated) | | |
|---|---|---|---|---|---|---|---|
| R7 | 200Ω | ½ | URD-1032 | | Red-Blk.-Br. | RF Amp. Cathode | ±5% |
| R8 | 6200Ω | 1 | URE-1068 | BTA-6200 ±5% | Blue-Red-Red | RF Amp. Plate | ±5% |
| R9 | 5600Ω | 1 | URE-1067 | BTA-5600 ±5% | Grn.-Blue-Red | RF Amp. Plate | ±5% |
| R10 | 3000Ω | 1 | URE-1066 | BTA-3000 ±5% | Gr.-Blk.-Red | Osc. Plate | ±5% |
| R11 | 22KΩ | ½ | URD-1061 | BTS-22K ±5% | Red-Red-Or. | Osc. Grid | ±5% |
| R12 | 220KΩ | ½ | URD-1071 | BTS-220K ±5% | Red-Red-Yl. | Mixer Grid | ± |
| R13 | 24KΩ | ½ | URD-1062 | BTS-24K ±5% | Red-Yl.-Or. | Mixer Plate | ±5% |
| R14 | 27KΩ | 1 | URE-083 | BTA-27K | Red-Vi.-Or. | Mixer Plate | |

## RESISTORS (CONT.)

| | | | | | | |
|---|---|---|---|---|---|---|
| R15 | 2700Ω | ½ | URD-1059 | BTS-2700 ±5% | Red-Vi.-Red | 1st Video IF Grid ±5% |
| R16 | 470 | ½ | URD-1017 | | Yl.-Vi.-Blk. | 1st Video IF Cathode ±5% |
| R17 | 24KΩ | ½ | URD-1082 | BTS-24K ±5% | Red-Yl.-Or. | 1st Video Screen ±5% |
| R18 | 1000Ω | ½ | URD-049 | BTS-1000 | Br.-Blk.-Red | 1st Video IF Plate Decoup. ±20% |
| R19 | 100KΩ | ½ | URD-097 | BTS-100K | Br.-Blk.-Yl. | Bias Network ±20% |
| R20 | 1600Ω | ½ | URD-1054 | BTS-1600 ±5% | Br.-Blue-Red | 2nd Video IF Grid ±5% |
| R21 | 47Ω | ½ | URD-1017 | | Yl.-Vi.-Blk. | 2nd Video IF Cathode ±5% |
| R22 | 24KΩ | ½ | URD-1082 | BTS-24K ±5% | Red-Yl.-Or. | 2nd Video IF Screen ±5% |
| R23 | 1000Ω | ½ | URD-049 | BTS-1000 | Br.-Blk.-Red | 2nd Video IF Plate Decoup. ±20% |
| R24 | 2700Ω | ½ | URD-1059 | BTS-2700 ±5% | Red-Vi.-Red | 3rd Video IF Grid ±5% |
| R25 | 24KΩ | ½ | URD-1082 | BTS-24K ±5% | Red-Yl.-Or. | 3rd Video IF Screen ±5% |
| R26 | 1000Ω | ½ | URD-049 | BTS-1000 | Br.-Blk.-Red | 3rd Video IF Plate Decoup. ±20% |
| R27 | 43KΩ | ½ | URD-1088 | BTS-43K ±5% | Yl.-Or.-Or. | " " " " " ±5% |
| R28 | 5100Ω | ½ | URD-1066 | BTS-5100 ±5% | Grn.-Br.-Red | Diode Load ±5% |
| R29 | 1 Meg. | ½ | URD-121 | BTS-1 Meg. | Br.-Blk.-Grn. | Video Amp. Grid ±20% |
| R30 | 5100Ω | 1 | URE-1066 | BTA-5100 ±5% | Grn.-Br.-Blk. | Video Amp. Plate ±5% |
| R31 | 10KΩ | 2 | URF-1073 | BT-2-10K ±5% | Br.-Blk.-Or. | " " " ±5% |
| R32 | 11KΩ | 2 | URF-1074 | BT-2-11K ±5% | Br.-Br.-Or. | " " " ±5% |
| R33 | 5600Ω | ½ | URD-1067 | BTS-5600 ±5% | Grn.-Blue-Red | Bleeder ±5% |
| R34 | 1 Meg. | ½ | URD-121 | BTS-1 Meg. | Br.-Blk.-Grn. | Video Output Grid ±20% |
| R35 | 120Ω | ½ | URD-1027 | | Br.-Red-Br. | Video Output Cathode ±5% |
| R36 | 3300Ω | 2 | URF-1061 | BT-2-3300 ±5% | Or.-Or.-Red | Video Output Plate ±5% |
| R37 | 1000Ω | ½ | URD-1049 | BTS-1000 ±5% | Br.-Blk.-Red | " " " ±5% |
| R38 | 270KΩ | ½ | URD-107 | BTS-270K | Red-Vi.-Yl. | Picture Tube Cathode |
| R39 | 20KΩ | 2 | URF-1080 | BT-2-20K | Red-Blk.-Or. | Bias Network |
| R40 | 4700Ω | ½ | URD-1065 | BTS-4700 | Yl.-Vi.-Red | " " |
| R41 | 120Ω | ½ | URD-1027 | | Br.-Red-Br. | 1st Sound IF Amp. Cathode ±5% |
| R42 | 56KΩ | ½ | URD-091 | BTS-56K | Grn.-Blue-Or. | 1st Sound IF Amp. Screen |
| R43 | 22KΩ | 1 | URE-1081 | BTA-22K ±5% | Red-Red-Or. | 1st Sound IF Amp. Plate ±5% |
| R44 | 120Ω | ½ | URD-1027 | | Br.-Red-Br. | 2nd Sound IF Amp. Cathode ±5% |
| R45 | 150KΩ | ½ | URD-101 | BTS-150K | Br.-Grn.-Yl. | 2nd Sound IF Amp. Screen ±20% |
| R46 | 22KΩ | 1 | URE-1081 | BTA-22K ±5% | Red-Red-Or. | 2nd Sound IF Amp. Plate ±5% |
| R47 | 220KΩ | ½ | URD-105 | BTS-220K | Red-Red-Yl. | Limiter Screen " |
| R48 | 1000Ω | ½ | URD-049 | BTS-1000 | Br.-Blk.-Red | Limiter Decoupling ±20% |
| R49 | 68KΩ | ½ | URD-093 | BTS-68K | Blue-Gray-Or. | De-emphasis ±20% |
| R50 | 68KΩ | ½ | URD-093 | BTS-68K | Blue-Gray-Or. | " ±20% |
| R51 | 82KΩ | ½ | URD-095 | BTS-82K | Gray-Red-Or. | Tone Compensation |
| R52 | 1000Ω | ½ | URD-049 | BTS-1000 | Br.-Blk.-Red | Audio Amp. Grid ±20% |
| R53 | 10 Meg. | ½ | URD-145 | BTS-10 Meg. | Br.-Blk.-Blue | " " " ±20% |
| R54 | 220KΩ | ½ | URD-105 | BTS-220K | Red-Red-Yl. | Audio Amp. Plate |
| R55 | 470KΩ | ½ | URD-113 | BTS-470K | Yl.-Vi.-Yl. | Audio Output Grid ±20% |
| R56 | 750Ω | 1 | URE-1046 | BTA-750 ±5% | Vi.-Grn.-Br. | Audio Output Cathode ±5% |
| R57 | 2.2 Meg. | ½ | URD-123 | BTS-2.2 Meg. | Red-Red-Grn. | Sync. Amp. Grid ±20% |
| R58 | 1000Ω | ½ | URD-049 | BTS-1000 | Br.-Blk.-Red | Sync. Amp. Cathode ±20% |
| R59 | 15KΩ | 1 | URE-077 | BTA-15K | Br.-Grn.-Or. | Sync. Amp. Plate |
| R60 | 3.9 Meg. | ½ | URD-135 | BTS-3.9 Meg. | Or.-Wh.-Grn. | Sync. Clipper Grid |
| R61 | 6800Ω | ½ | URD-069 | BTS-6800 | Blue-Gray-Red | Sync. Clipper Cathode |
| R62 | 1600Ω | ½ | URD-1054 | BTS-1600 ±5% | Br.-Blue-Red | Sync. Clipper Plate ±5% |
| R63 | 8200Ω | ½ | URD-071 | BTS-8200 | Gray-Red-Red | Integrator |
| R64 | 8200Ω | ½ | URD-071 | BTS-8200 | Gray-Red-Red | " |
| R65 | 75KΩ | ½ | URD-1094 | BTS-75K ±5% | Vi.-Grn.-Or. | Vert. Multivibrator Grid ±5% |
| R66 | 220KΩ | ½ | URD-1105 | BTS-220K ±5% | Red-Red-Yl. | Vert. Multivibrator Plate ±5% |
| R67 | 82KΩ | ½ | URD-1095 | BTS-82K | Gray-Red-Or. | Vert. Multivibrator Grid ±20% |
| R68 | 24KΩ | ½ | URD-1082 | BTS-24K ±5% | Red-Yl.-Or. | " " " -Note ±5% |
| R69 | 2.2 Meg. | ½ | URD-1129 | BTS-2.2 Meg. ±5% | Red-Red-Grn. | Vert. Multivibrator Plate ±5% |
| R70 | 27KΩ | 1 | URE-083 | BTA-27K | Red-Vi.-Or. | Voltage Dropping |
| R71 | 470Ω | ½ | URD-1041 | BTS-470 | Yl.-Vi.-Br. | Vert. Output Cathode ±20% |
| R72 | 100KΩ | ½ | URD-097 | BTS-100K | Br.-Blk.-Yl. | Vert. Output Plate ±20% |
| R73 | 1500Ω | ½ | URD-053 | BTS-1500 | Br.-Grn.-Red | Vert. Defl. Coil Shunt |
| R74 | 1 Meg. | ½ | URD-1121 | BTS-1 Meg. | Br.-Blk.-Grn. | AFC Tube Grid ±20% |
| R75 | 3.3 Meg. | 1 | URE-133 | BTA-3.3 Meg. | Or.-Or.-Grn. | Voltage Divider ±20% |
| R76 | 18KΩ | ½ | | BTS-18K | Br.-Gray-Or. | AFC Filter |
| R77 | 180KΩ | ½ | URD-1103 | BTS-180K | Br.-Gray-Yl. | AFC Tube Cathode |
| R78 | 82KΩ | ½ | URD-1095 | BTS-82K | Gray-Red-Or. | Voltage Divider Network |
| R79 | 33KΩ | 1 | URE-085 | BTA-33K | Or.-Or.-Or. | " " " ±20% |
| R80 | 47KΩ | 1 | URE-089 | BTA-47K | Yl.-Vi.-Or. | " " " |
| R81 | 24KΩ | ½ | URD-1082 | BTS-24K ±5% | Red-Yl.-Or. | Bleeder ±5% |
| R82 | 100KΩ | ½ | URE-097 | BTA-100K | Br.-Blk.-Yl. | AFC Tube Plate ±20% |
| R83 | 82KΩ | 2 | URF-1095 | BT-2-82K | Gray-Red-Or. | Horiz. Block. Osc. Plate ±20% |
| R84 | 150KΩ | ½ | URD-101 | BTS-150K | Br.-Grn.-Yl. | AFC Network |
| R85 | 82KΩ | ½ | URD-1095 | BTS-82K | Gray-Red-Or. | Bias Network |
| R86 | 56KΩ | ½ | URD-091 | BTS-56K | Grn.-Blue-Or. | " " |
| R87 | 1 Meg. | ½ | URD-121 | BTS-1 Meg. | Br.-Blk.-Grn. | Horiz. Output Grid ±20% |
| R88 | 330Ω | ½ | URD-037 | | Or.-Or.-Br. | Grid Current Limiting ±20% |
| R89 | 82Ω | 2 | URF-1023 | | Gray-Red-Blk. | Horiz. Output Cathode |
| R90 | 33Ω | 1 | URE-013 | | Or.-Red-Blk. | Horiz. Output Plate Sup. ±20% |
| R91 | 470KΩ | ½ | URD-113 | BTS-470K | Yl.-Vi.-Yl. | Current Limiting ±20% |
| R92 | 27KΩ | 2 | URF-083 | BT-2-27K | Red-Vi.-Or. | Horiz. Output Screen |
| R93 | 27KΩ | 2 | URF-083 | BT-2-27K | Red-Vi.-Or. | " " " |
| R94 | 470KΩ | ½ | URD-113 | BTS-470K | Yl.-Vi.-Yl. | Hi.Volt. Filter ±20% |
| R95 | 3300Ω | 2 | URF-061 | BT-2-3300 | Or.-Or.-Red | Horiz. Size Coil Shunt ±20% |
| R96 | 4700Ω | ½ | URD-065 | BTS-4700 | Yl.-Vi.-Red | Horiz. Linearity Coil Shunt ±20% |
| R97 | 560KΩ | ½ | URD-115 | BTS-560K | Grn.-Blue-Yl. | Differentiator |
| R98 | 2200Ω | 2 | URF-1057 | BT-2-2200 | Red-Red-Red | Filter ±20% |
| R99 | .65Ω | 4 | RRW-029 | | | Filament Dropping |
| R100 | 56Ω | 7 | RRW-028 | | | Filter |
| R101 | 1Ω | ½ | RRW-034 | | | Filament Dropping |
| R102 | 56KΩ | ½ | URD-091 | BTS-56K | Grn.-Blue-Or. | Limiter Grid |
| R103 | 100KΩ | ½ | URD-097 | BTS-100K | Br.-Blk.-Yl. | Acc. Anode Filter ±20% |
| R104 | 1 Meg. | ½ | URD-121 | BTS-1 Meg. | Br.-Blk.-Grn. | Isolation |

Note-R68 is either shorted out or left in the circuit when centering of vertical hold control R3A is checked at factory.

## TRANSFORMER (POWER)

| ITEM No. | RATING: PRI. | RATING: SEC. 1 | RATING: SEC. 2 | RATING: SEC. 3 | REPLACEMENT DATA: GENERAL ELECT. PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. |
|---|---|---|---|---|---|---|---|---|
| T1 | 2 Amp. @ 117VAC | 130 MA @ 630VAC & 115 MA @ 590VAC | 3 Amp. @ 5VAC & SEC. 4 2 Amp. @ 6.3VAC | 2 Amp. @ 6.3VAC & SEC. 5 3.6 Amp. @ 12VAC | RTP-062 | | | |

## TRANSFORMER (SWEEP CIRCUITS)

| ITEM No. | RATING: DC RESISTANCE PRI. | RATING: DC RESISTANCE SEC. | REPLACEMENT DATA: GENERAL ELECTRIC PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T2 | 730Ω | 11Ω | RTO-053 | A-8115* | TV-24S86* | A-3035* | *Drill new mtg. holes |
| T3 | 120Ω | | RTM-003 | | | | Hor. Block. Osc. Trans. |
| | tapped @ 35Ω | | | | | | |
| T4 | 38Ω | SEC.#1 230Ω | RTO-054 | | | | Hor. Output Trans. |
| | SEC.#2 11Ω | SEC.#3 0Ω | | | | | |
| T5A | 28Ω | | RLD-006 | | | | Vert. Deflection Yoke |
| B | 15Ω | | | | | | Hor. Deflection Yoke |
| T6 | 100Ω | | RLF-013 | | | | Focus Coil |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: GENERAL ELECTRIC PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T7 | 7400Ω | 3.2Ω | 580Ω | .6Ω | RTO-052 | A-3878 | T22S47 | A-2902 | |

## SPEAKER

| ITEM No. | RATING: FIELD | RATING: V. C. IMP. | REPLACEMENT DATA: GENERAL ELECT. PART No. | JENSEN PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | PM | 3.2Ω | UOP-577 | ST-105 | 52A1 | |
| | CONE DIA. | V. C. DIA. | | | | |
| SP2 | 5" | 9/16" | | | | |

## FILTER CHOKE

| ITEM No. | RATINGS: TOTAL DIRECT CURRENT | RATINGS: D. C. RESISTANCE | RATINGS: INDUCTANCE (0 CURRENT 1000 ~) | REPLACEMENT DATA: GENERAL ELECTRIC PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| L1 | 175MA | 160Ω | 7 Henries | RLI-059 | C-2300 | | | |
| L2 | 115MA | 160Ω | 7 Henries | RLI-060 | C-2309 | | | |

PARTS LIST AND DESCRIPTION CONTINUED ON PAGE 11

# ALIGNMENT INSTRUCTIONS

## ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

### SOUND IF ALIGNMENT

High voltage may be disabled during alignment by removing V14.
Keep signal generator output low enough to prevent overloading the amplifiers.
Contrast control should be set at approximately half rotation for all IF adjustments.
The signal generator lead should be terminated with a resistor equal to the impedance of the generator then connected with as short a lead as possible through a 500 MMF capacitor. Connect ground lead to chassis at the closest possible point.
When aligning the Video IF, the tube preceding the one to which signal is applied should be removed. If this is not done, the previous coil will act as a trap and cause considerable change in the response pattern.
If the response curve is peaked at the low frequency end and can not be connected by the slug, try changing the 6AU6 into which the signal is fed. Abnormally high plate capacity can cause this difficulty.
Use insulated alignment tool for adjustments.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | 500 MMF. | Pin #1 (grid) of 6AU6 (V9). | 21.8MC 1MC sweep | 21.8MC | 4 | High side to Point Ⓐ through 100KΩ resistor. Low side to chassis. | A1 | Adjust for maximum amplitude with marker at center of peak. See Fig. 1. |
| 2 | 500 MMF. | Pin #1 (grid) of 6AU6 (V8). | " | " | " | " | A2 | " (See Note Below) |
| 3 | 500 MMF. | " | " | 21.8MC (400 ∿ Mod.) | " | High side to Point Ⓑ through 10KΩ resistor. Low side to chassis. | A3 | Adjust for symmetrical S curve. At proper frequency the modulation at the edges of the pattern will disappear. See Fig. 2. |
| 4 | 500 MMF. | " | " | " | " | " | A4 | Adjust for maximum amplitude and symmetry of S curve. Repeat Steps 3 and 4 for best results. |

NOTE: On later production L21 has been changed to a transformer. Adjust both top and bottom slugs for maximum amplitude and symmetry.

### VIDEO IF ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 5 | 500 MMF | Pin #1 (grid) of 6AU6 (V5). | 25MC 10MC sweep | 22.9MC 26.3MC | 4 | High side to Point Ⓒ through 10KΩ resistor. Low side to chassis. | A5,A6 | Adjust for maximum amplitude with pattern as shown in Fig. 3. Remove V4 during this adjustment. |
| 6 | 500 MMF. | Pin #1 (grid) of 6AU6 (V4). | " | 22.9MC 25.55MC 26.3MC | " | " | A7 | Adjust for maximum amplitude with pattern as shown in Fig. 4. Remove V3 during this adjustment. |
| 7 | 500 MMF. | Pin #1 (grid) of 6AU6 (V3). | Not used | 21.8MC 400 ∿ (Mod.) | " | " | A8 | Adjust for minimum amplitude. |
| 8 | 500 MMF. | " | 25MC 10MC sweep | 22.9MC 23.4MC 25.55MC 26.3MC | " | " | A9 | Remove V2 during this step. Adjust for maximum amplitude with pattern as shown in Fig. 5. |
| 9 | 500 MMF. | Pin #7 (grid) of 12AT7. | " | " | " | " | A10 | Turn A11 to minimum. Adjust for maximum amplitude with pattern as shown in Fig. 5. |
| 10 | 500 MMF | " | " | " | " | " | A11 | Adjust for 26.3MC at half amplitude as shown in Fig. 6. |

### RF ALIGNMENT

Terminate signal generator lead with a carbon resistor equal to generator impedance, then connect to antenna terminals through two equal resistances to make total equal approximately 300 ohms.
DO NOT ATTEMPT TO ALIGN THE RF SECTION UNLESS IT IS DEFINITELY KNOWN TO BE NECESSARY. Usually alignment will not be necessary unless a coil has been damaged or replaced. Since separate coils are used for each switch position it should be necessary to re-align only the deflective channel. Adjustment of A12 and A13 may be necessary when tubes are replaced in the RF Tuner.
Adjustments are made by changing the inductance of the individual coils. Coupling is fixed except for channels #2 and #3. Coupling on channel #2 may be varied by sliding the copper rings on the coil form. Coupling on channel #3 may be adjusted if necessary by moving turns at the insides of the coils. Frequency adjustment is made in each case by expanding or compressing the coils. The upper three switch positions each cover two channels and must be sufficiently broad. The fine tuning control should be at center position during oscillator alignment.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 11 | Resistive (See above) | Antenna terminals. | 85MC 15MC sweep | 83.25MC 87.75MC | 6 | High side to Point Ⓓ. Low side to chassis. Disconnect C16. | A12,A13 | Adjust for maximum amplitude and flat response. See Fig. 7. |
| 12 | " | " | 79MC 15MC sweep | 77.25MC 81.75MC | 5 | " | A14 | " |
| 13 | " | " | 69MC 15MC sweep | 67.25MC 71.75MC | 4 | " | A15 | " |
| 14 | " | " | 63MC 15MC sweep | 61.25MC 65.75MC | 3 | " | A16 | " |
| 15 | " | " | 57MC 15MC sweep | 55.25MC 59.75MC | 2 | " | A17 | Adjust for maximum. See Fig. 8. |
| 16 | " | " | 177MC 15MC sweep | 175.25MC 179.75MC | 7 | " | A18,A19 | Adjust for maximum. See Fig. 7. Keep slugs approximately even. |
| 17 | " | " | 186.5MC 25MC sweep | 181.25MC 191.75MC | 8-9 | " | A20,A21 | Adjust for maximum. See Fig. 9. |
| 18 | " | " | 198.5MC 25MC sweep | 193.25MC 203.75MC | 10-11 | " | A22,A23 | " |
| 19 | " | " | 210.5MC 25MC sweep | 205.25MC 215.75MC | 12-13 | " | A24,A25 | " |

## OSCILLATOR ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 20 | Resistive (see above) | Antenna terminals | 59.75MC (Modulated) | 2 | | A26 | Set volume control and tuning control at mid-position. Use sound output as indicator. Squeeze or spread turns to adjust. |
| 21 | " | " | 65.75MC (Modulated) | 3 | | A27 | " |
| 22 | " | " | 71.75MC (Modulated) | 4 | | A28 | " |
| 23 | " | " | 81.75MC (Modulated) | 5 | | A29 | " |
| 24 | " | " | 87.75MC (Modulated) | 6 | | A30 | " |
| 25 | " | " | 179.75MC (Modulated) | 7 | | A31 | " |
| 26 | " | " | 188.75MC (Modulated) | 8-9 | | A32 | " |
| 27 | " | " | 200.75MC (Modulated) | 10-11 | | A33 | " |
| 28 | " | " | 212.75 (Modulated) | 12-13 | | A34 | " |

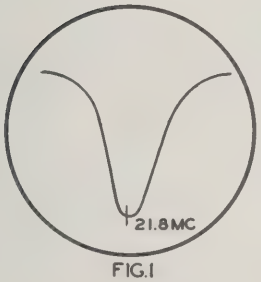


FIG.1

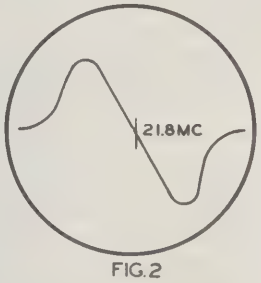


FIG.2

FIG.3

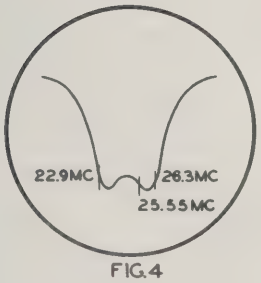


FIG.4

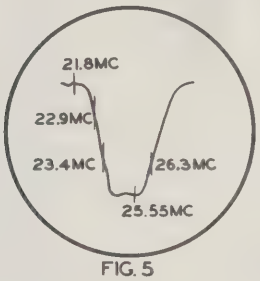


FIG. 5

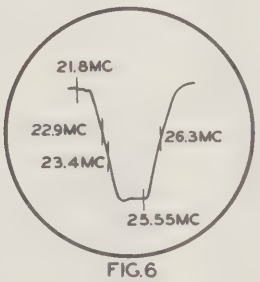


FIG.6

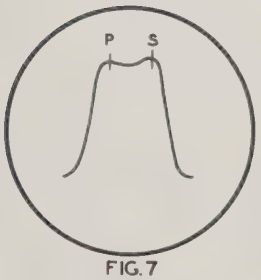


FIG.7

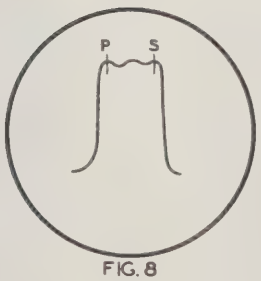


FIG. 8

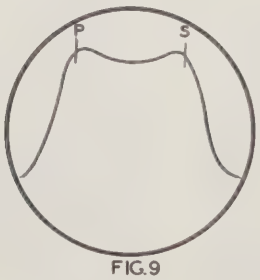


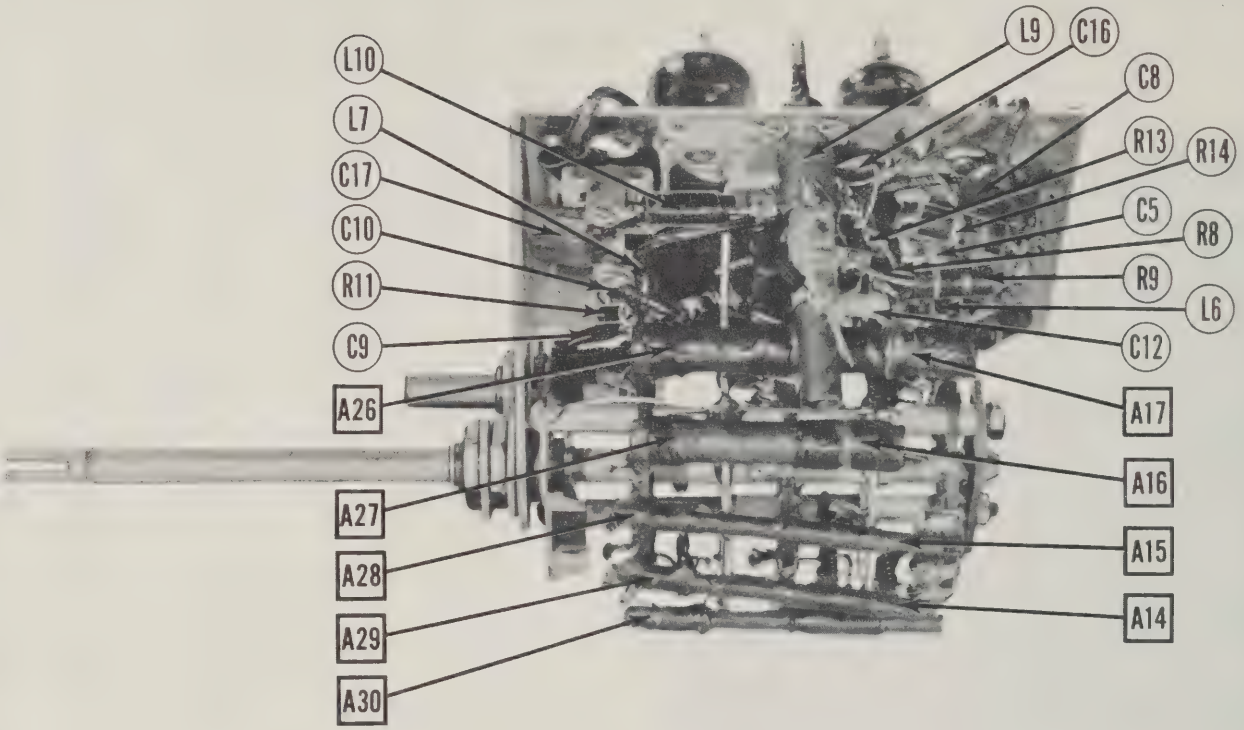
FIG.9

# HORIZONTAL FREQUENCY ADJUSTMENT

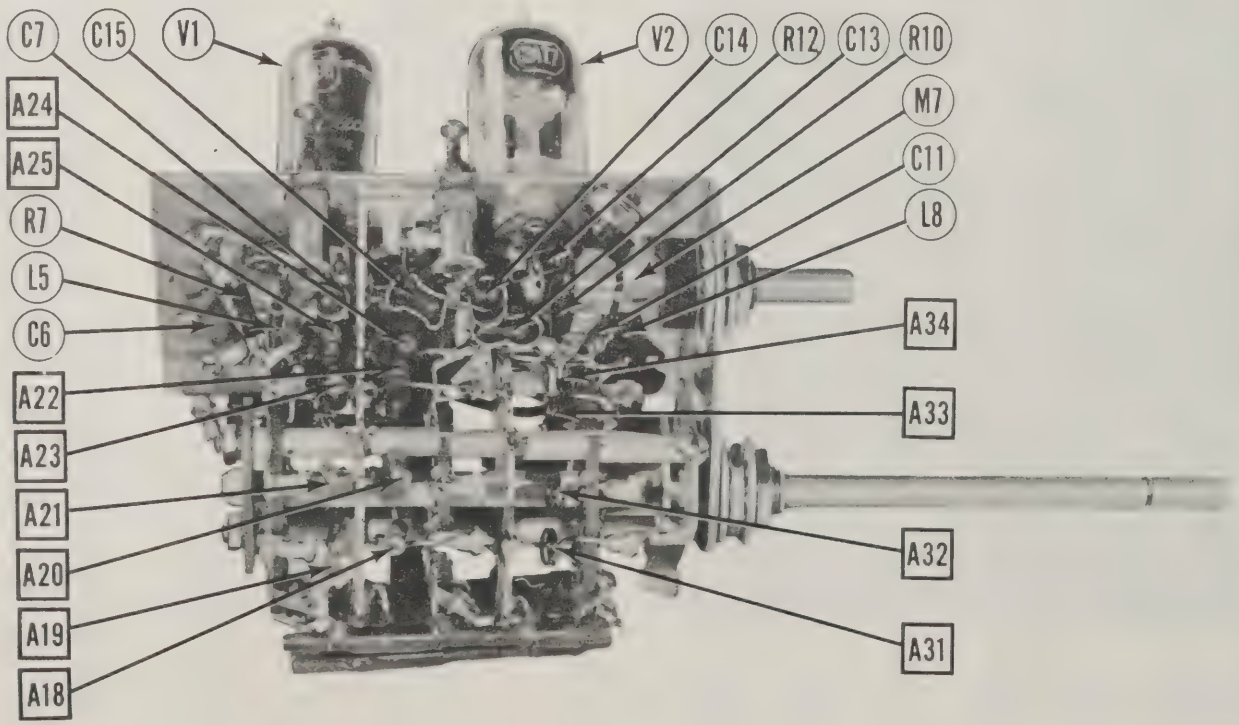
The horizontal frequency control is a coarse adjustment used to set the front panel horizontal hold control to obtain synchronization at approximately the center of its range. The core (B1) of the blocking oscillator transformer sets the natural frequency of the system.

Connect a VTVM to the junction of the contrast control and resistor R85. Tune in a television signal and adjust the front panel horizontal hold control to the center of its range. Alternately adjust the horizontal frequency control and slug B1 until synchronization is obtained with 12 volts indicated by the VTVM. The voltage must be within one volt of 12 volts at the correct adjustment.

The front panel horizontal hold control should cause the picture to fall out of synchronization at each end of its rotation.




RF TUNER – RIGHT SIDE




RF TUNER – LEFT SIDE

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

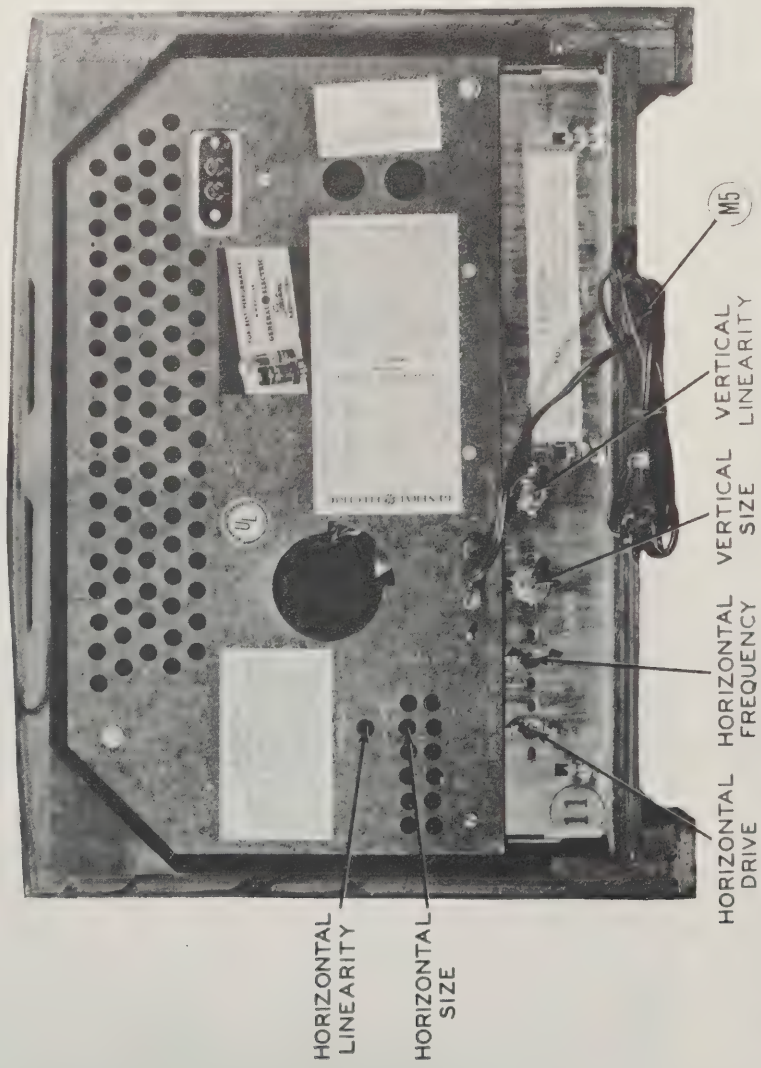
| ITEM No. | USE | DC RES.. PRI. | DC RES.. SEC. | REPLACEMENT DATA GENERAL ELECTRIC PART No. | REPLACEMENT DATA MEISSNER PART No. | NOTES |
|---|---|---|---|---|---|---|
| L3 | Ant. Trans. | 0Ω | 0Ω | RLA-031 | | |
| L4 | Compensating | 0Ω | | RLI-006 | | |
| L5 | RF Cathode | 0Ω | | RLI-003 | | Low Band |
| L6 | " " | 0Ω | | RLI-006 | | High Band Only |
| L7 | Osc. Cath. | 1.5Ω | | RLI-019 | | |
| L8 | Osc. Fil. | 0Ω | | RLI-005 | | |
| L9 | 1st IF | .5Ω | .2Ω | RTL-081 | | |
| L10 | Video Trap | .2Ω | | RLI-005 | | |
| L11 | 2nd IF | .2Ω | .2Ω | RTL-082 | | |
| L12 | Sound Trap | .5Ω | | RLI-061 | | |
| L13 | 3rd Video IF | .2Ω | .2Ω | RTL-083 | | |
| L14 | 4th Video IF | .2Ω | .2Ω | RTL-089 | | |
| L15 | Shunt Peak. | 7.5Ω | | RLI-038 | | |
| L16 | Series Peaking | 7.5Ω | | RLI-038 | | |
| L17 | Shunt Peak. | 7.5Ω | | RLI-038 | | |
| L18 | Series Peaking | 7.5Ω | | RLI-038 | | |
| L19 | Hor. Size | 2.4Ω | 125Ω | RLD-004 | | |
| L20 | Hor. Linearity | 33Ω | | RLD-005 | | |
| L21A | 3rd Sound IF | .1Ω | | RTL-085 | | |
| B | 3rd Sound IF | | | RTL-090 | | Late Production (See inset on schematic) |
| L22 | 4th Sound IF | .1Ω | | RTL-085 | | |
| L23 | Discriminator | .1Ω | .1Ω | RTD-007 | | |

## SELENIUM RECTIFIER

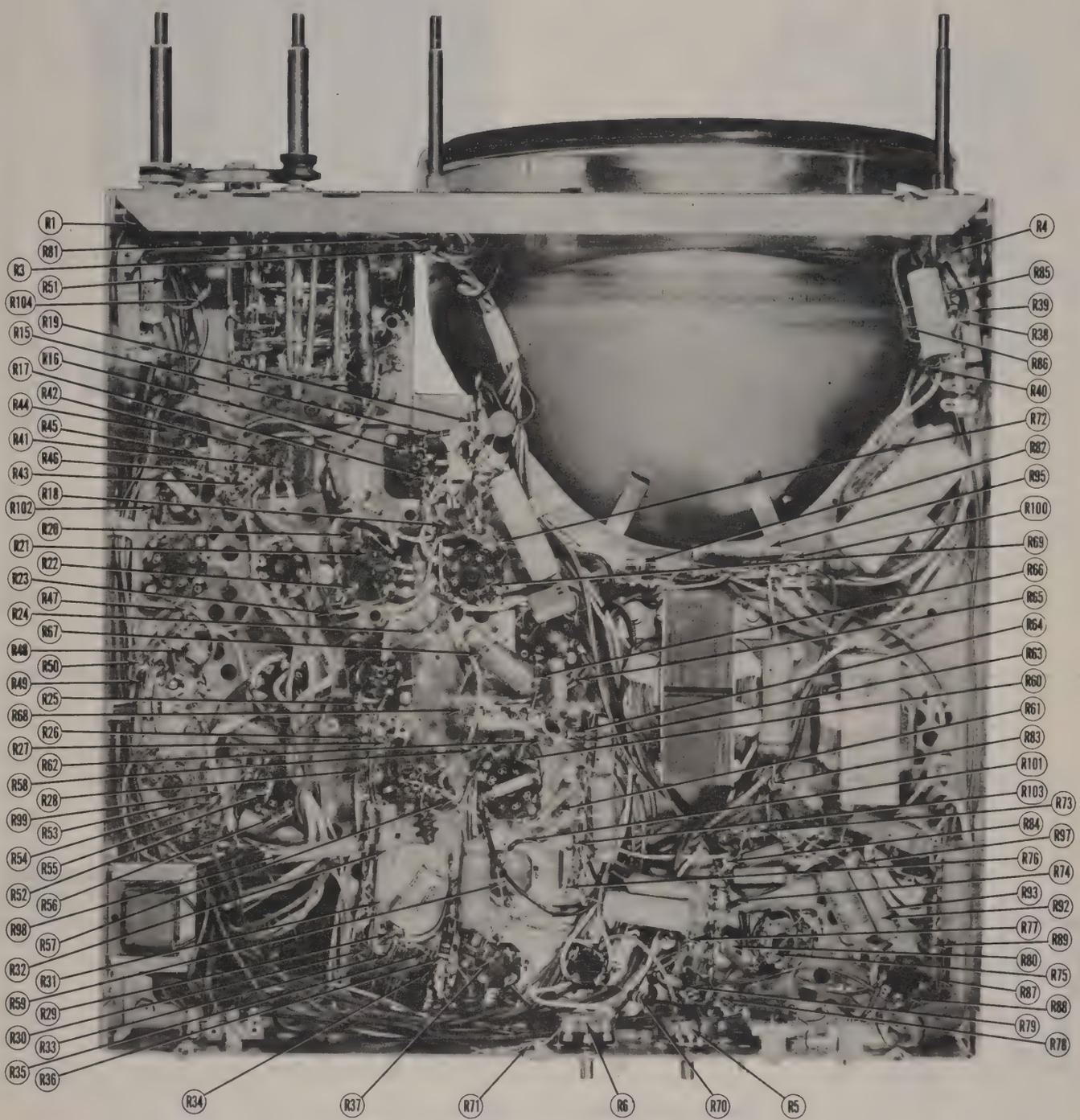
| ITEM No. | RATING CURRENT | REPLACEMENT DATA GENERAL ELECT PART No. | | | NOTES |
|---|---|---|---|---|---|
| M1 | 150MA | RER-003 | | | |

## MISCELLANEOUS

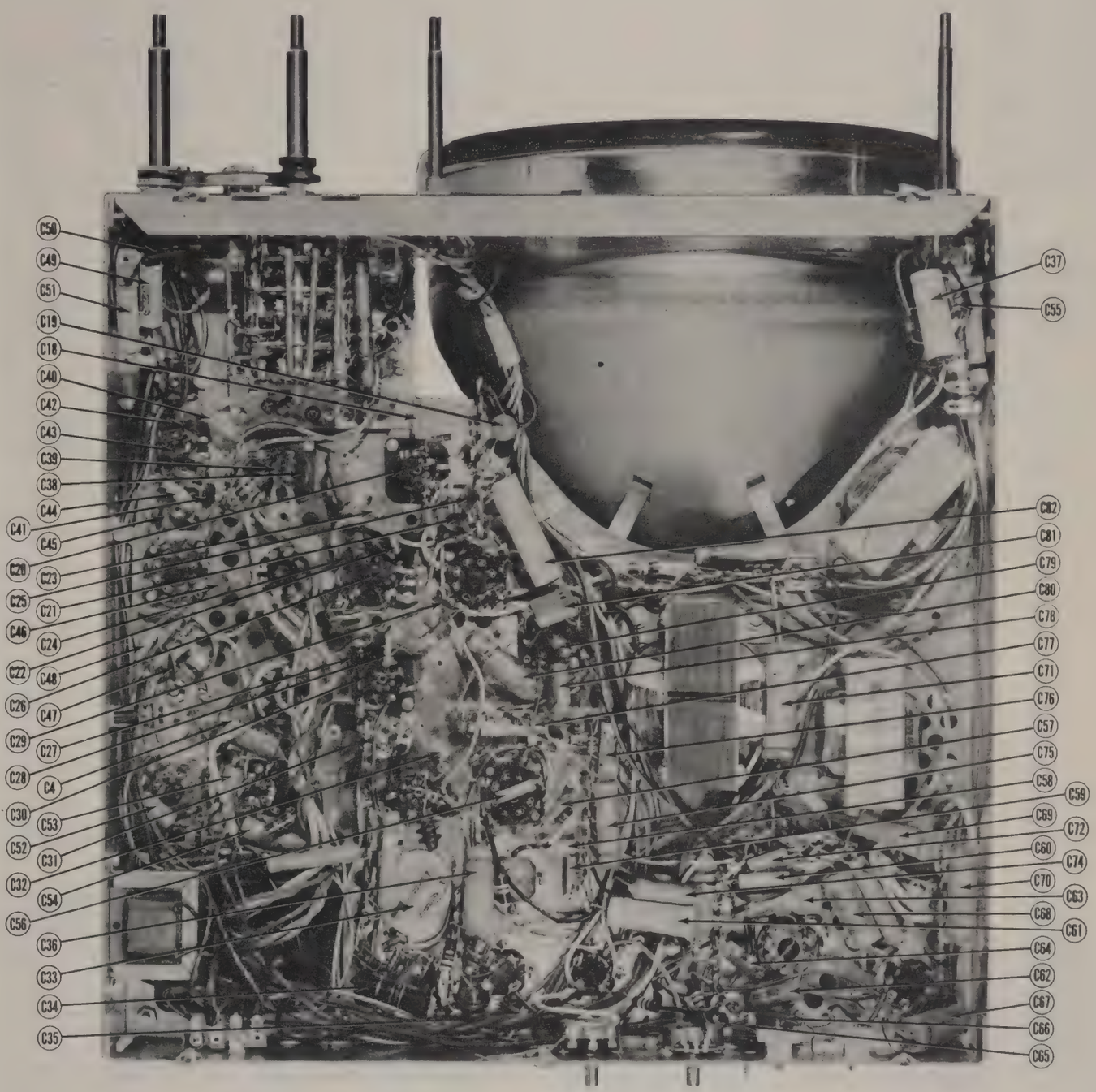
| ITEM No. | PART NAME | GENERAL ELECTRIC PART No. | NOTES |
|---|---|---|---|
| M2 | RF Tuner Complete | RJX-023 | |
| M3 | Centering Assembly | RAX-024 | |
| M4 | AC Receptacle | RJJ-007 | |
| M5 | Power Cord and Plug | RWL-019 | |
| M6 | Picture Tube Socket | RJS-119 | |
| M7 | Fine Tuning | RCY-046 | Variable Capacitor 1.25 MMF |
| A8 | Sound Trap Trimmer | RCY-047 | Mica Trimmer 1.5-15 MMF |
| A11 | Video Carrier Set | RCY-047 | " " " " |
| A12 | RF Trimmer | RCY-048 | " " .4-2.4 MMF |
| A13 | Mixer Trimmer | RCY-048 | " " .4-2.4 MMF |
| B1 | Core | RE1-015 | Horizontal Osc. Adjustment |
| | " | RE1-016 | IF Adjustments |
| | " | RE1-017 | Horizontal Linearity Adjustment |
| | " | RE1-018 | Horizontal Size Control |
| | " | RE1-019 | Discriminator Adjustment |
| | " | RE1-026 | L14 Primary |
| | " | RE1-014 | High Band RF Adjustments |
| | Horizontal Frequency Control | RCY-045 | Trimmer - 25-150 MMF. |
| | Horizontal Drive | RCY-045 | Trimmer - 25-150 MMF. |
| | Safety Glass | RDW-010 | |
| | Knob | RDK-152 | Vertical Hold and Contrast |
| | " | RDK-153 | Horizontal Hold and Brightness |
| | " | RDK-154 | Focus and Tuning |
| | " | RDK-155 | Volume and Channel Selector |
| | Cabinet | RAV-059 | |
| | Cabinet Back Cover | RAB-077 | |
| | Sleeve | RHM-054 | Fiber Centering Sleeve |




CABINET-REAR VIEW




CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION




CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION

# VOLTAGE AND RESISTANCE MEASUREMENTS

## VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6AU6 | 0V. | 140VDC | 0V. | 6.3VAC | 140VDC | 140VDC | 1.7VDC | - | - |
| V 2 | 12AT7 | 215VDC | -.5VDC | .05VDC. | 6.2VDC | 6.3VAC | 150VDC | -5.2VDC | 0V. | Pin #9 0V. |
| V 3 | 6AU6 | -1.2VDC | 0V. | 0V. | 6.3VAC | 265VDC | 165VDC | .7VDC | - | - |
| V 4 | 6AU6 | -.3VDC | 0V. | 0V. | 6.3VAC | 265VDC | 158VDC | .8VDC | - | - |
| V 5 | 6AU6 | -.4VDC | 0V. | 0V. | 6.3VAC | 230VDC | 120VDC | 0V. | - | - |
| V 6 | 6AL5 | 0V. | -.4VDC | 6.3VAC | 0V. | 0V. | 0V. | -11VDC | - | - |
| V 7 | 12AU7 | 45VDC | -.6VDC | 0V. | 0V. | 0V. | 165VDC | 0V. | 2VDC | Pin #9 6.3VAC |
| V 8 | 6AU6 | 0V. | 0V. | 0V. | 6.3VAC | 117VDC | 100VDC | 1.0VDC | - | - |
| V 9 | 6AU6 | 0V. | 0V. | 0V. | 6.3VAC | 165VDC | 55VDC | .6VDC | - | - |
| V 10 | 6SH7 | 0V. | 0V. | 0V. | -.4VDC | 0V. | 42VDC | 6.3VAC | 235VDC | - |
| V 11 | 6AQ7GT | 0V. | .4VDC | .1VDC | -.6VDC | 90VDC | 0V. | 6.3VAC | 0V. | - |
| V 12 | 6K6GT | 0V. | 0V. | 305VDC | 110VDC | 0V. | 18VDC | 6.3VAC | 18VDC | - |
| V 13 | 6SN7GT | -1.2VDC | 170VDC 250VDC | 5.3VDC | 0V. | 160VDC | 5.3VDC | 0V. | 6.3VAC | - |
| V 14 | 6SN7GT | -75VDC | 200VDC | 0V. | -45VDC | 44VDC | -38VDC | 0V. | 6.3VAC | - |
| V 15 | 6BG6G | 0V. | 0V. | 7.3VDC | -10VDC | -10VDC | 0V. | 6.3VAC | 300VDC | # |
| V 16 | 5V4G | 0V. | 440VDC | 0V. | 350VDC | 0V. | 350VDC | 0V. | 440VDC | - |
| V 17 | 6SN7GT | -.4VDC | 24VDC | 0V. | -3.2VDC | 3.1VDC 4.9VDC | 0V. | 0V. | 6.3VAC | - |
| V 18 | 6V6GT | 0V. | 6.3VAC | 270VDC | 170VDC 250VDC | 3.1VDC 4.9VDC | -.3VDC | 0V. | 13VAC 21VDC | - |
| V 19 | 1B3GT | | D O N O T M E A S U R E . | | | | | | | |
| V 20 | 5U4G | 0V. | 380VDC | 0V. | 315VAC | 0V. | 315VAC | 0V. | 380VDC | - |
| V 21 | 5Y3GT | 0V. | 300VDC | 0V. | 295VAC | 0V. | 295VAC | 0V. | 300VDC | - |
| V 22 | 10FP4 | 300VDC | 165VDC | Pin #10 435VDC | Pin #11 200VDC | Pin #12 300VDC | | | | |

#DO NOT MEASURE.

## RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6AU6 | 0Ω | 12KΩ† | 0Ω | .1Ω | 12KΩ† | 12KΩ† | 200Ω | - | - |
| V 2 | 12AT7 | 3.5KΩ† | 22KΩ | 1Ω | .1Ω | .1Ω | 30KΩ† | 220KΩ | 0Ω | Pin #9 0Ω |
| V 3 | 6AU6 | 60KΩ | 0Ω | 0Ω | .1Ω | 13KΩ† | 25KΩ† | 47Ω | - | - |
| V 4 | 6AU6 | 160KΩ | 0Ω | 0Ω | .1Ω | 13KΩ† | 25KΩ† | 47Ω | - | - |
| V 5 | 6AU6 | 60KΩ | 0Ω | 0Ω | .1Ω | 15KΩ† | 25KΩ† | 0Ω | - | - |
| V 6 | 6AL5 | 0Ω | 3.5 Meg. | .1Ω | 0Ω | 0Ω | 0Ω | 5KΩ | - | - |
| V 7 | 12AU7 | 20KΩ* | 900KΩ | 0Ω | 0Ω | 0Ω | 48KΩ† | 850KΩ | 120Ω | Pin #9 .1Ω |
| V 8 | 6AU6 | .1Ω | 0Ω | 0Ω | .1Ω | 23KΩ† | 60KΩ† | 120Ω | - | - |
| V 9 | 6AU6 | .1Ω | 0Ω | 0Ω | .1Ω | 23KΩ† | 150KΩ† | 120Ω | - | - |
| V 10 | 6SH7 | 0Ω | 0Ω | 0Ω | 60KΩ | 0Ω | 240KΩ† | .1Ω | 17KΩ† | - |
| V 11 | 6AQ7GT | .2Ω | 120KΩ | 240KΩ | 10 Meg. | 230KΩ† | 0Ω | .1Ω | 0Ω | - |
| V 12 | 6K6GT | INF. | 0Ω | 3KΩ* | 550Ω† | 500KΩ | 750Ω | .1Ω | 750Ω | - |
| V 13 | 6SN7GT | 3.5 Meg. | 30KΩ* 110KΩ* | 7KΩ | 2.5 Meg. | 14KΩ† | 1000Ω | 0Ω | .1Ω | - |
| V 14 | 6SN7GT | 160KΩ | INF. | 0Ω | 850KΩ | 50KΩ* | 280KΩ | 0Ω | .1Ω | - |
| V 15 | 6BG6G | INF. | 0Ω | 80Ω | 1 Meg. | 1 Meg. | INF. | .1Ω | INF. | INF. |
| V 16 | 5V4G | INF. | INF. | INF. | 180Ω* | INF. | 180Ω* | INF. | INF. | - |
| V 17 | 6SN7GT | 80KΩ | 220KΩ* | 0Ω | 80KΩ | 2.2 Meg.* | 0Ω | 0Ω | .1Ω | - |
| V 18 | 6V6GT | INF. | .1Ω | 900Ω† | 30KΩ* 110KΩ* | 2.2 Meg.* | 50KΩ | 0Ω | 470Ω 1500Ω | - |
| V 19 | 1B3GT | INF. | INF. | INF. | INF. | INF. | INF. | INF. | INF. | INF. |
| V 20 | 5U4G | INF. | 25KΩ | INF. | 15Ω | INF. | 16Ω | INF. | 25KΩ | - |
| V 21 | 5Y3GT | INF. | 35KΩ | INF. | 13Ω | INF. | 14Ω | INF. | 35KΩ | - |
| V 22 | 10FP4 | 35KΩ | 48KΩ† | Pin #10 INF. | Pin #11 28KΩ | Pin #12 35KΩ | | | | |

*MEASURED FROM PIN 2 OF V20. †MEASURED FROM PIN 2 OF V21.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms.

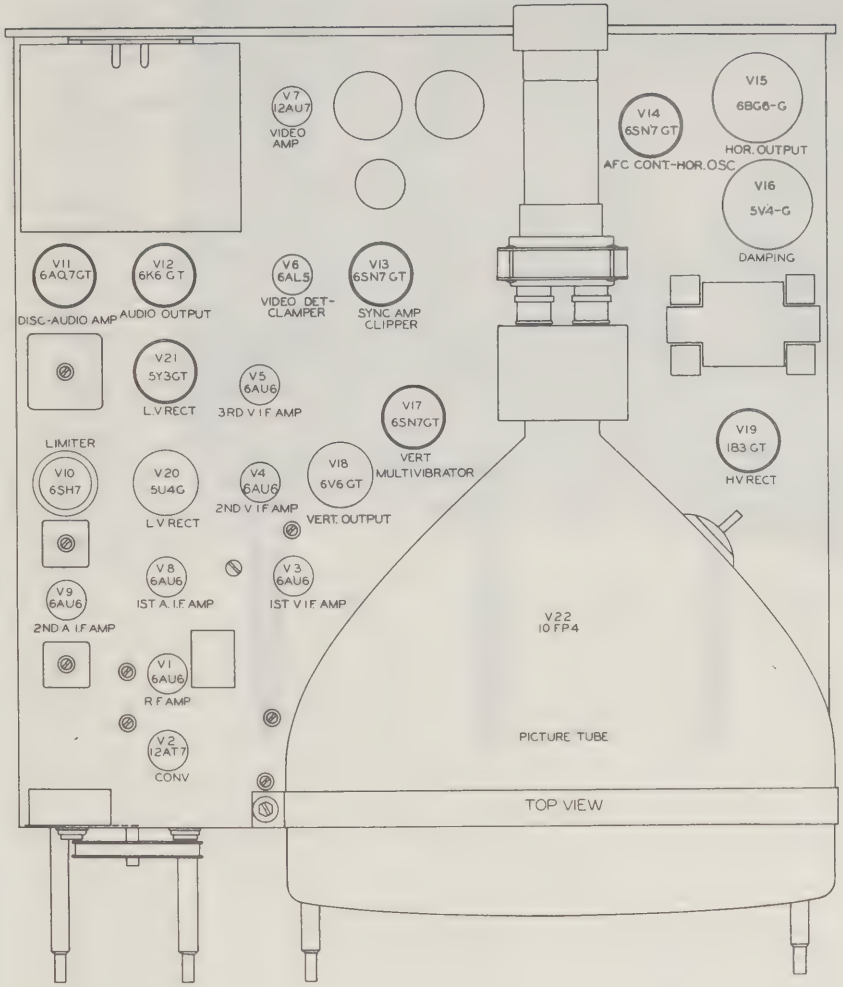
2 - Socket connections are shown as bottom views.

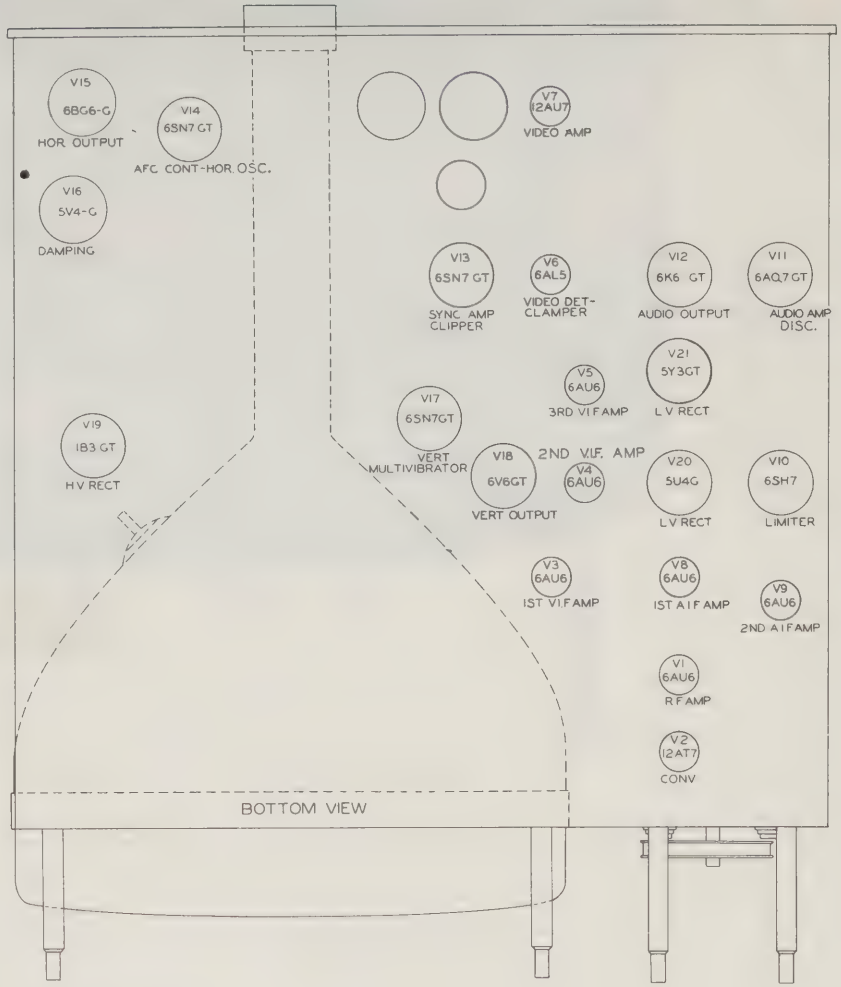
3 - Measured values are from socket pin to common negative unless otherwise stated.

4 - Line voltage maintained at 117 volts for voltage readings.

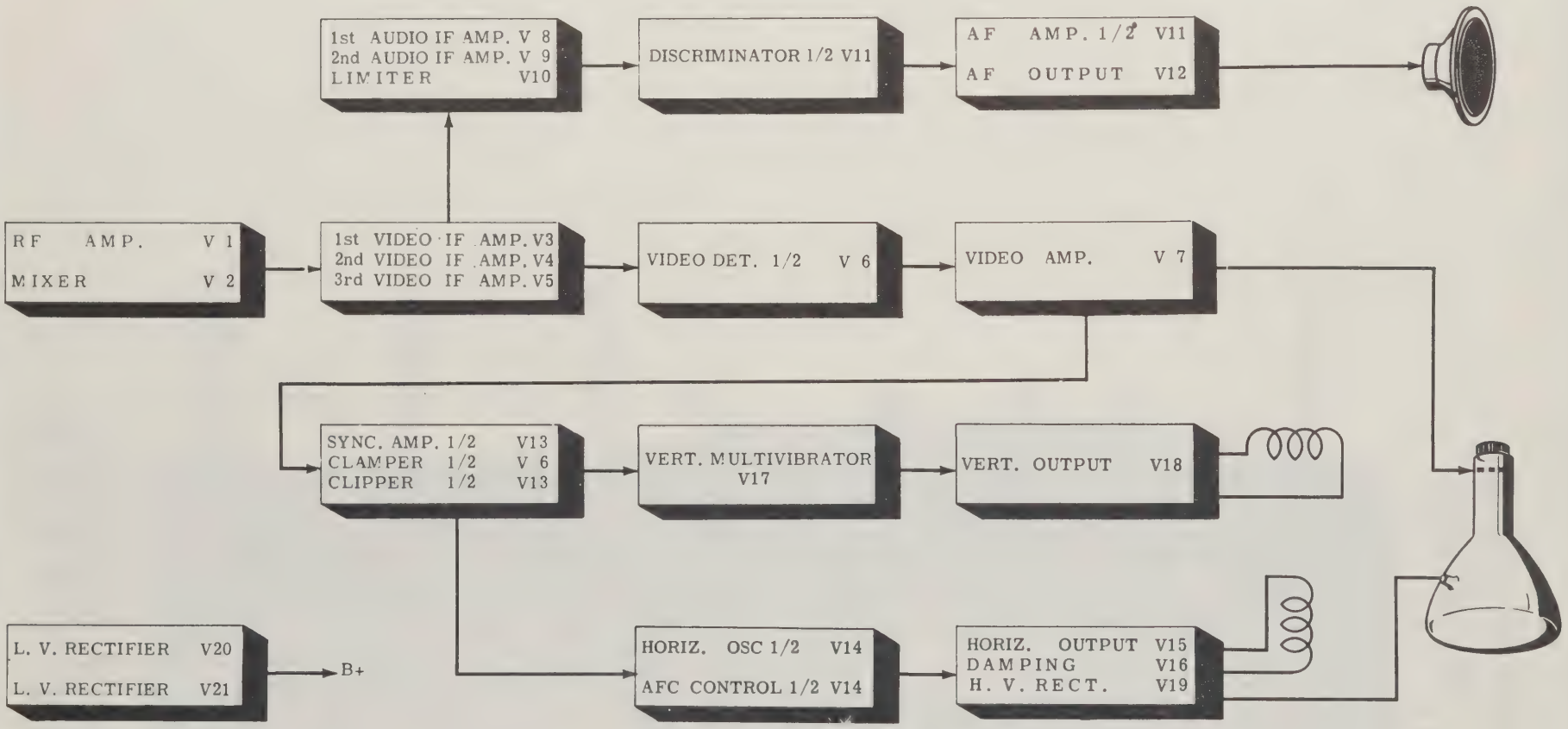
5 - Front panels controls set at maximum.

6 - Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.


V7 12AU7 VIDEO AMP
V14 6SN7 GT AFC CONT-HOR.OSC
V15 6BG6-G HOR. OUTPUT
V16 5V4-G DAMPING
V11 6AQ7GT DISC-AUDIO AMP
V12 6K6 GT AUDIO OUTPUT
V6 6AL5 VIDEO DET-CLAMPER
V13 6SN7 GT SYNC. AMP CLIPPER
V21 5Y3GT L.V RECT
V5 6AU6 3RD V I.F. AMP
V17 6SN7GT VERT MULTIVIBRATOR
V19 1B3 GT HV RECT
LIMITER
V10 6SH7
V20 5U4G L.V RECT
V4 6AU6 2ND V I.F. AMP
V18 6V6 GT VERT. OUTPUT
V8 6AU6 IST A. I.F. AMP
V3 6AU6 IST V I.F. AMP
V9 6AU6 2ND A. I.F. AMP
V1 6AU6 R.F. AMP
V2 12AT7 CONV
V22 10FP4
PICTURE TUBE
TOP VIEW


V15 6BG6-G HOR. OUTPUT
V14 6SN7 GT AFC CONT-HOR.OSC.
V16 5V4-G DAMPING
V7 12AU7 VIDEO AMP
V13 6SN7 GT SYNC. AMP CLIPPER
V6 6AL5 VIDEO DET-CLAMPER
V12 6K6 GT AUDIO OUTPUT
V11 6AQ7 GT AUDIO AMP DISC.
V5 6AU6 3RD V I.F. AMP
V21 5Y3GT L.V RECT
V17 6SN7GT VERT MULTIVIBRATOR
V19 1B3 GT HV RECT
2ND V.I.F. AMP
V18 6V6GT VERT OUTPUT
V4 6AU6
V20 5U4G L.V RECT
V10 6SH7 LIMITER
V3 6AU6 IST V I.F. AMP
V8 6AU6 IST A I.F. AMP
V9 6AU6 2ND A I.F. AMP
V1 6AU6 R.F. AMP
V2 12AT7 CONV
BOTTOM VIEW

# TUBE PLACEMENT CHART




BLOCK DIAGRAM

# DISASSEMBLY INSTRUCTIONS

1. Remove eight push-on type knobs from from panel.
2. Remove six screws from back and remove.
3. Disconnect speaker leads.
4. Remove four chassis screws from bottom of cabinet and slide chassis out of cabinet.
5. Remove four nuts holding speaker and remove.

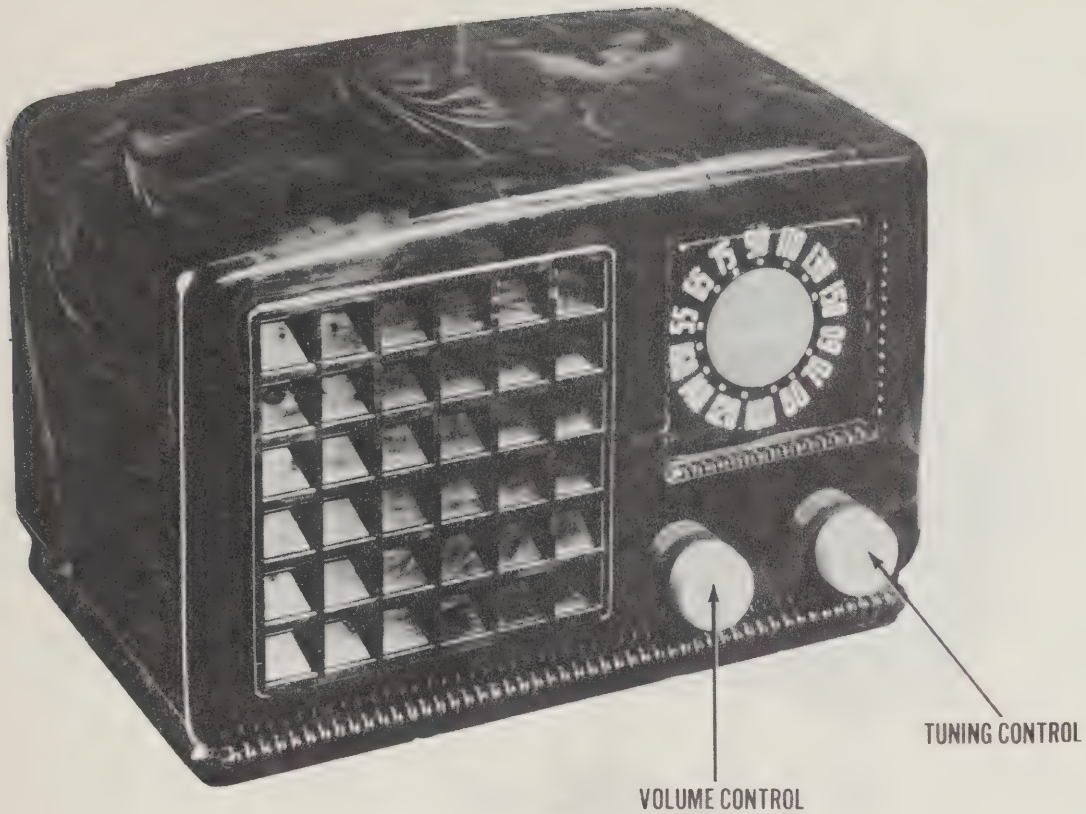
# CENTERING ADJUSTMENTS

Centering adjustments are made by means of two circular magnets mounted on the focus and deflection assembly. The assembly may be turned the necessary direction, and the amount of correction may be changed by rotating the large magnet with respect to the smaller one and by sliding the two magnets together or apart. Maximum effect is with the two magnets close together and aligned. Minimum effect is achieved by turning the large magnet to oppose the small one.

# HORIZONTAL LINEARITY ADJUSTMENT

The horizontal drive control should first be set to minimum capacity. With the horizontal size control at approximately its correct position adjust the horizontal linearity control for best linearity. If this does not give good linearity turn the horizontal drive control slightly clockwise and repeat the adjustments. If there is a foldover of the pattern, turn the horizontal drive control clockwise until the fold disappears.

KNIGHT MODELS
5F-525, 5F-526




KNIGHT MODELS
5F-525, 5F-526

KNIGHT MODEL 5F-525

| | |
|---|---|
| **TRADE NAME** | Knight, Model 5F-525, 5F-526 |
| **SUPPLIER** | Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill. |
| **TYPE SET** | AC-DC Operated Superheterodyne Receiver with Loop Antenna |
| **TUBES** (FIVE) | Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| **POWER SUPPLY** | 110-120 Volts AC-DC |
| **TUNING RANGE—BROADCAST** | 540-1630KC RATING .25 Amp. @ 117 Volts AC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to the large stator of tuning cap. Low side to B-. | 455KC | Tuning cap. fully open. | Across voice coil | A1, A2, A3, A4 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation. |
| 2 | .1 MFD. | " | 1630KC | " | " | A5 | Adjust for maximum output. |
| 3 | | Loop | 1400KC | Tune for maximum output. | " | A6 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A6 for maximum output. |

HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana

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# PARTS LIST AND DESCRIPTIONS

KNIGHT MODEL 5F-525

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: KNIGHT PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 12SA7GT | 12SA7GT | 8AD | |
| 2 | IF Amp. | 12SK7GT | 12SK7GT | 8N | |
| 3 | 2nd Det.-AVC-AF | 12SQ7GT | 12SQ7GT | 8Q | |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: KNIGHT PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 6A | 30 | 150 | B18-283 | PRSA150/30-30 | E23315 | M-2x30-150 | TA-330 | Filter-Red |
| B | 30 | 150 | | | | | | " -Yellow |
| 7 | .05 | 400 | A16-158 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Filter |
| 8 | .05 | 400 | A16-158 | 484-05 | GT4S5 | ST-4-05 | 72P2 | Line Isolation |
| 9 | .002 | 600 | A16-155 | 684-002 | GT6D2 | ST-6-002 | TC-22 | Output Plate Bypass |
| 10 | .005 | 600 | A16-153 | 684-005 | GT6D5 | ST-6-005 | TC-25 | Audio Coupling |
| 11 | .005 | 600 | A16-153 | 684-005 | GT6D5 | ST-6-005 | TC-25 | " " |
| 12 | .05 | 200 | A16-152 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 13 | .02 | 400 | A16-150 | 484-02 | GT4S2 | ST-4-02 | TC-12 | Osc. Tuning Cap. Iso. |
| 14 | 250 | 500 | A15-176 | 1468-00025 | 5W5T25 | M0.5-325 | 1FM-325 | AF Plate Bypass |
| 15 | 250 | 500 | A15-176 | 1468-00025 | 5W5T25 | M0.5-325 | 1FM-325 | Diode RF Filter |
| 16 | 50 | 500 | A15-175 | 1468-00005 | 5W5S5 | M0.5-45 | 1FM-45 | Osc. Grid Cap. |

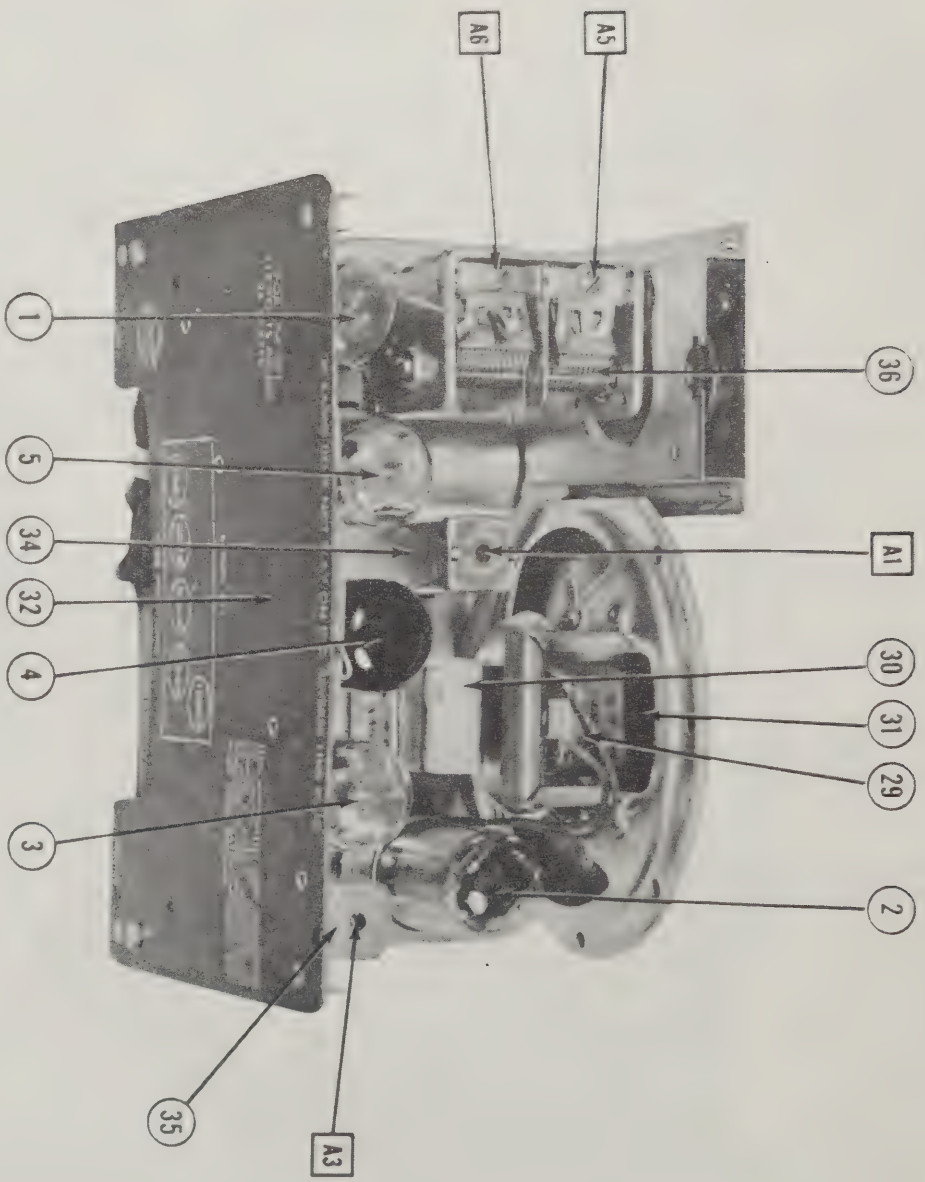
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: KNIGHT PART No. | REPLACEMENT DATA: IRC PART No. | REPLACEMENT DATA: CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 17A | 1 Meg. | ½ | A-24-174 | | 15/16-63-Z | Volume Control |
| B | Switch | | Not Req. | | SQST SW. | Attached at factory. |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: KNIGHT PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 18 | 22KΩ | ½ | A60-659 | BTS-22K | Red-Red-Or. Osc. Grid |
| 19 | 2.2 Meg. | ½ | A60-684 | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 20 | 47KΩ | ½ | A60-685 | BTS-47K | Yl.-Vi.-Or. Diode Filter |
| 21 | 10 Meg. | ½ | A60-663 | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 22 | 470KΩ | ½ | A60-662 | BTS-470K | Yl.-Vi.-Yl. AF Plate Load |
| 23 | 470KΩ | ½ | A60-662 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 24 | 150Ω | ½ | A60-686 | BW-½-150 | Br.-Grn.-Br. Output Cathode |
| 25 | 10KΩ | 1 | A60-698 | BTA-10K | Br.-Blk.-Or. Bias |
| 26 | 1000Ω | 1 | A60-732 | BTA-1000 | Br.-Blk.-Red Filter |
| 27 | 27Ω | ½ | A60-690 | BW-½-27 | Red-Vi.-Blk. Rectifier Ballast |
| 28 | 470KΩ | ½ | A60-662 | BTS-470K | Yl.-Vi.-Yl. Line Isolation |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | KNIGHT PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 29 | 1600Ω | 3.2Ω | 194Ω | .6Ω | Part of B79-368 | A-3865 | T22S45 | A-2928 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | KNIGHT PART No. | JENSEN PART No. | QUAM PART No. | |
| | FIELD | VC IMP. | | ST-105† | | †Fabricate new mounting bracket. |
| 30 | PM | 3.2Ω | B79-368 | Mod. P5-X | 5A15† | |
| | CONE DIA. | VC DIA. | | | | |
| 31 | 4-3/4" | 9/16" | | | | |

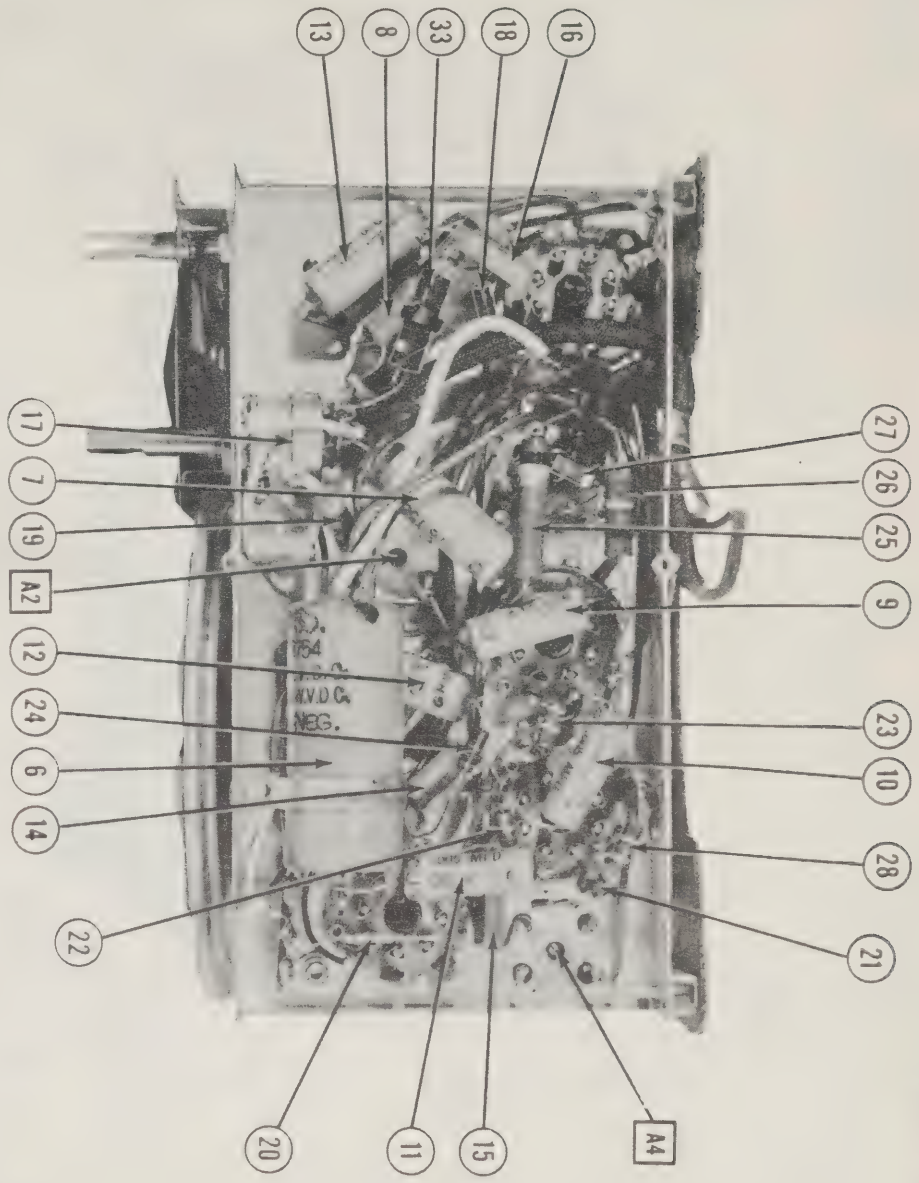
## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | KNIGHT PART No. | MEISSNER PART No. | |
| 32 | Loop Ant. | | 1Ω | S84-265 | | |
| 33 | Osc. Coil | | 5Ω | B10-502 | | |
| 34 | Input IF | 22Ω | 22Ω | A10-475 | 16-6678 | |
| 35 | Output IF | 20Ω | 26Ω | A10-479 | 16-6678 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | KNIGHT PART No. | NOTES |
|---|---|---|---|
| 36 | 2 Gang Var. Cap. | B19-194 | (38-462MMF, 32-197MMF) |
| | Cabinet | A42-451 | Brown |
| | " | D42-424 | Ivory |
| | Dial Scale | B67-510 | |
| | Pointer | A58-56 | |
| | Knob | A52-243 | Black |
| | " | A52-222 | Ivory |

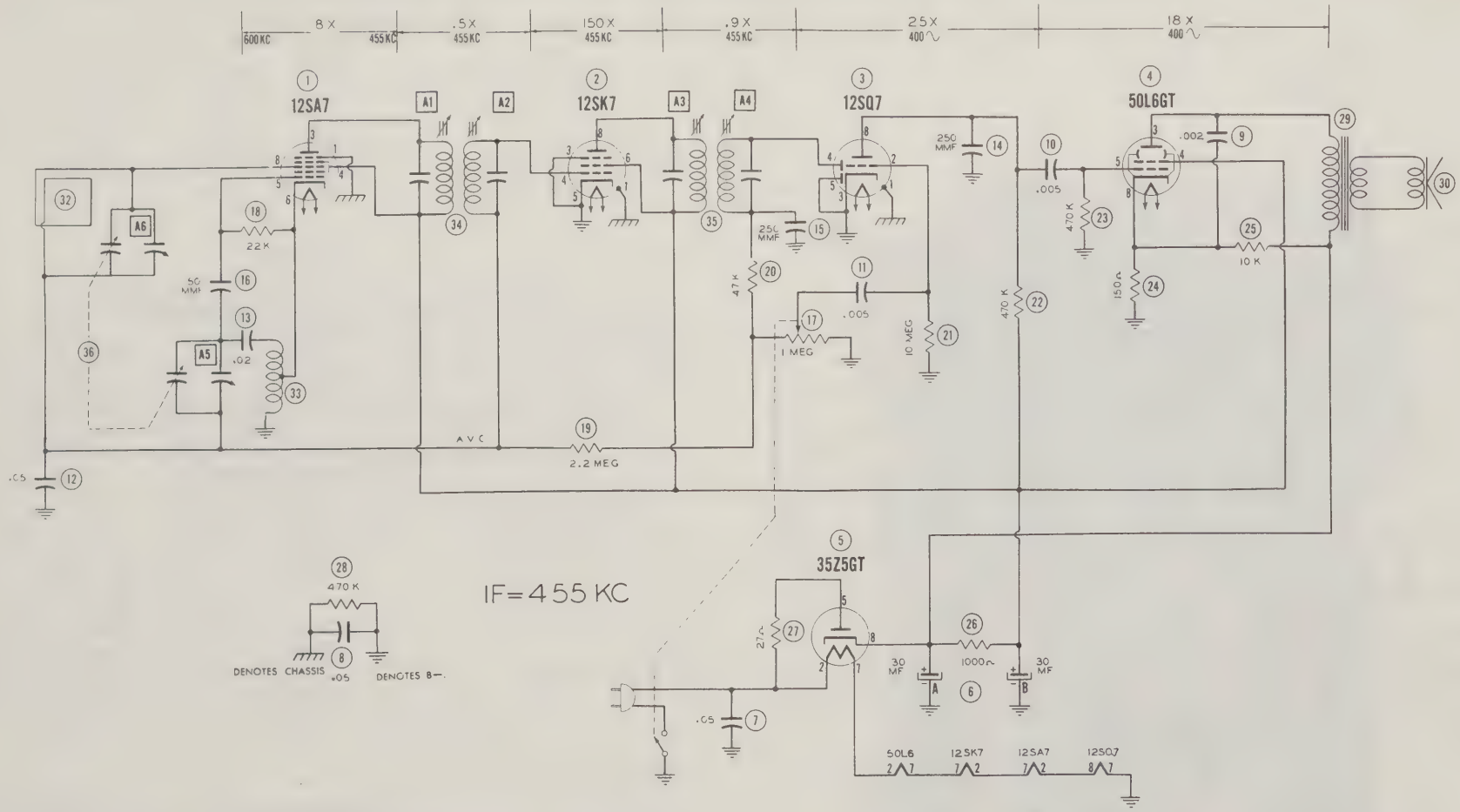
# CHASSIS—BOTTOM VIEW






DATE 1/49-#491-13 SET #53-FOLDER #13

KNIGHT MODEL SF-525




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 0V. | 12VAC | 92VDC | 92VDC | -7.2VDC§ | 0V. | 24VAC | -.2VDC |
| 2 | 12SK7GT | 0V. | 24VAC | 0V. | -.5VDC | 0V. | 92VDC | 37VAC | 92VDC |
| 3 | 12SQ7GT | 0V. | -.5VDC | 0V. | -.5VDC | 0V. | 50VDC | 0V. | 12VAC |
| 4 | 50L6GT | 0V. | 85VAC | 118VDC | 92VDC | 0V. | 0V. | 37VAC | 6.7VDC |
| 5 | 35Z5GT | 0V. | 117VAC | 106VAC | 117VAC | 113VAC | 0V. | 85VAC | 120VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 470KΩ | 12Ω | 10KΩ | 10KΩ | 22KΩ | 1Ω | 2Ω | 3.2 Meg. |
| 2 | 12SK7GT | 470KΩ | 2Ω | 0Ω | 3.2 Meg. | 0Ω | 10KΩ | 36Ω | 10KΩ |
| 3 | 12SQ7GT | 470KΩ | 10 Meg. | 0Ω | 1 Meg. | 0Ω | 480KΩ | 0Ω | 12Ω |
| 4 | 50L6GT | INF. | 85Ω | 10KΩ | 10KΩ | 470KΩ | INF. | 36Ω | 150Ω |
| 5 | 35Z5GT | INF. | 120Ω | 110Ω | 120Ω | 150Ω | 3.2 Meg. | 85Ω | 10KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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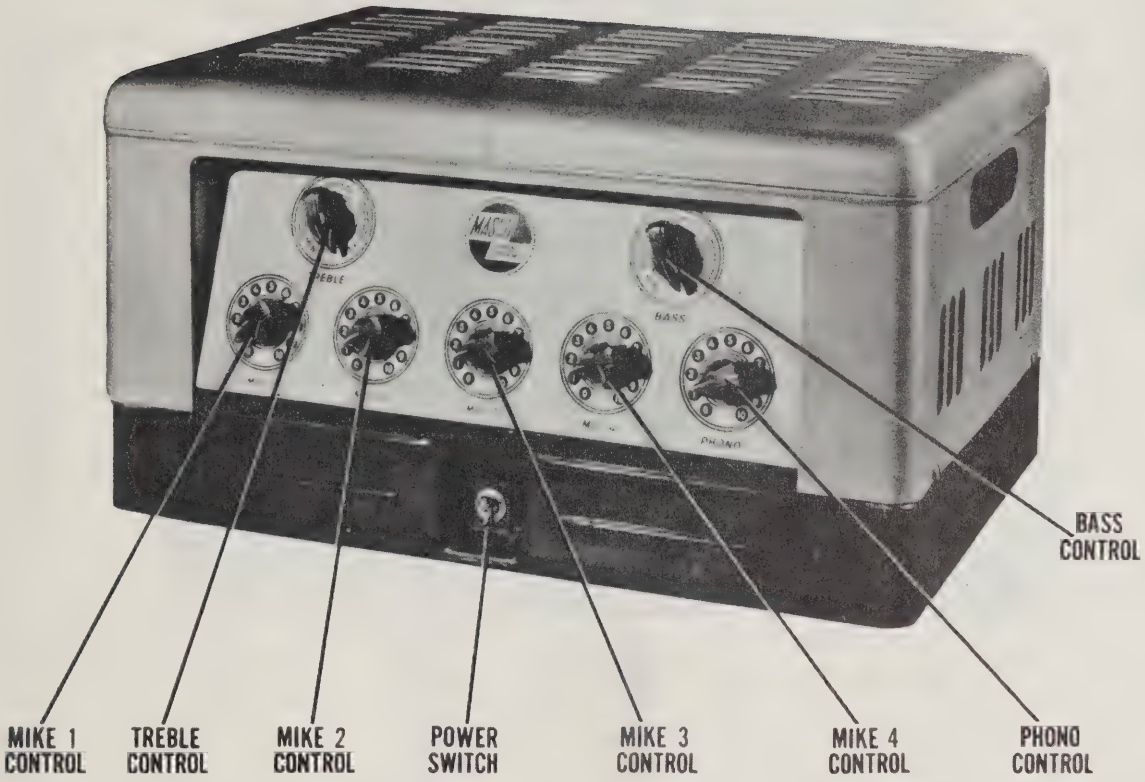
491-13

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MASCO MODEL
MA-50NR




MASCO MODEL
MA-50NR

MASCO MODEL MA-50NR

| | |
|---|---|
| TRADE NAME | Masco, Model MA-50NR |
| MANUFACTURER | Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City, N.Y. |
| TYPE SET | AC Operated 4 Channel Audio Amplifier |
| TUBES (THIRTEEN) | Types, 6J7 Mic. 1 Amp., 6J7 Mic. 2 Amp., 6J7 Mic. 3 Amp., 6J7 Mic. 4 Amp., 6SC7 Mixer, 6SJ7 1st AF, 6SC7 2nd AF-Phase Inv., (4) 6L6G Power Output, (2) 5V4G Rectifier. |
| POWER SUPPLY | 105-125 Volts AC RATING 1.73 Amp. @ 117 Volts AC |

**HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: MASCO PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | NOTES |
|---|---|---|---|---|---|
| 1 | Mic. 1 Amp. | | 6J7 | 7R | |
| 2 | Mic. 2 Amp. | | 6J7 | 7R | |
| 3 | Mic. 3 Amp. | | 6J7 | 7R | |
| 4 | Mic. 4 Amp. | | 6J7 | 7R | |
| 5 | Mixer | | 6SC7 | 8S | |
| 6 | 1st AF | | 6SJ7 | 8N | |
| 7 | 2nd AF-Phase Inverter | | 6SC7 | 8S | |
| 8 | Power Output | | 6L6G | 7AC | |
| 9 | " " | | 6L6G | 7AC | |
| 10 | " " | | 6L6G | 7AC | |
| 11 | " " | | 6L6G | 7AC | |
| 12 | Rectifier | | 5V4G | 5L | |
| 13 | " | | 5V4G | 5L | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

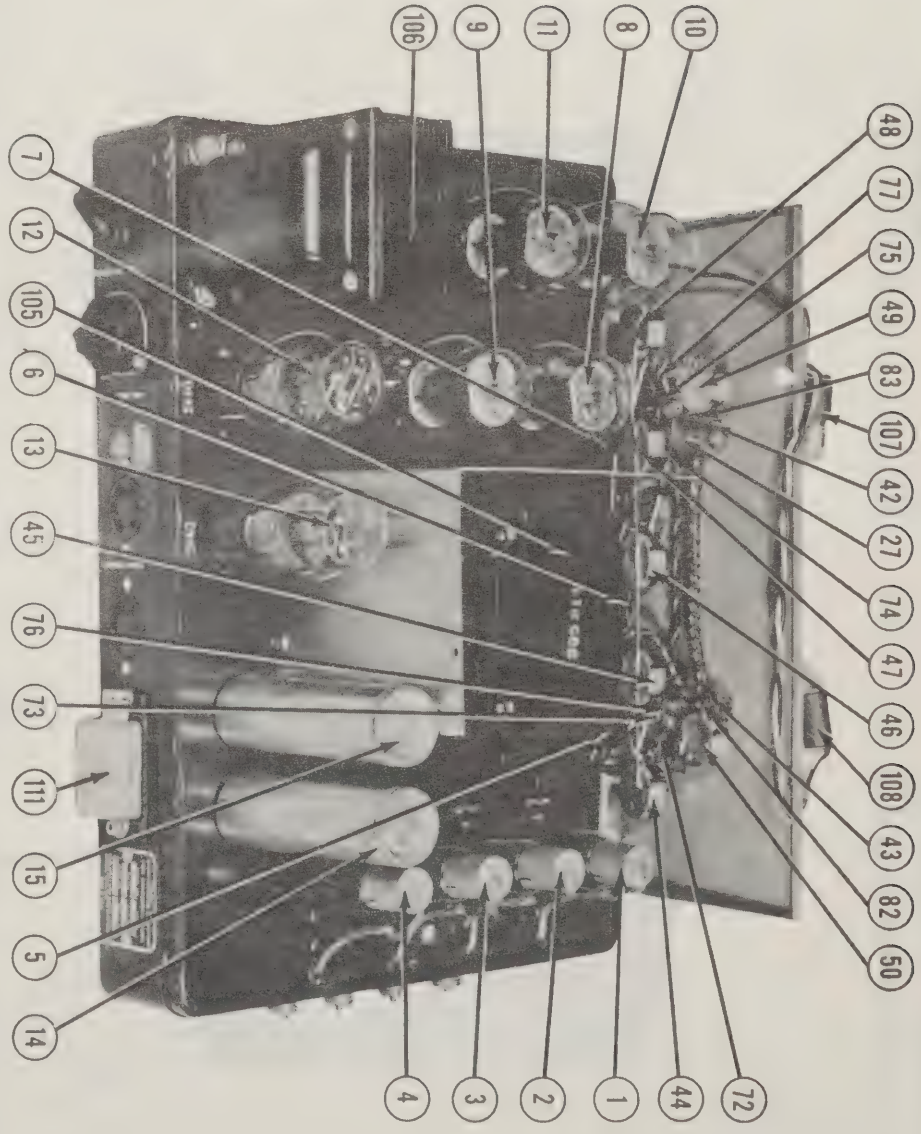
| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: MASCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 14 | 8 | 600 | | GL-600-8 | KR608 | D-8-600 | AP86 | Filter |
| 15 | 8 | 600 | | GL-600-8 | KR608 | D-8-600 | AP86 | " |
| 16 | 8 | 450 | | PRS450-8 | BR845 | M-8-450 | UT-8 | " |
| 17A | 8 | 450 | | PRSA450/8-8 | EDL8845 | DH-2x8-450 | UT-88 | Decoupling |
| B | 8 | 450 | | | | | | AF Plate Decoupling |
| 18 | 8 | 450 | | PRS450-8 | BR845 | M-8-450 | UT-8 | Decoupling |
| 19 | 8 | 450 | | PRS450-8 | BR845 | M-8-450 | UT-8 | Mic. Amp. 2 Decoup. |
| 20 | 8 | 450 | | PRS450-8 | BR845 | M-8-450 | UT-8 | Mic. Amp. 1 Decoup. |
| 21 | 50 | 50 | | PRS50-50 | BR505 | M-50-50 | TA-550 | Mic. Amp. 2 Cath. Byp. |
| 22 | 50 | 50 | | PRS50-50 | BR505 | M-50-50 | TA-550 | Mic. Amp. 1 " " |
| 23 | 50 | 50 | | PRS50-50 | BR505 | M-50-50 | TA-550 | Output Cathode Byp. |
| 24 | .1 | 600 | | 684-1 | GT6P1 | ST-6-1 | TC-1 | Audio Coupling |
| 25 | .1 | 600 | | 684-1 | GT6P1 | ST-6-1 | TC-1 | " " |
| 26 | .05 | 600 | | 684-05 | GT6S5 | ST-6-05 | TC-15 | " " |
| 27 | .005 | 600 | | 684-005 | GT6D5 | ST-6-005 | TC-25 | Tone Compensation |
| 28 | .05 | 600 | | 684-05 | GT6S5 | ST-6-05 | TC-15 | Audio Coupling |
| 29 | .01 | 600 | | 684-01 | GT6S1 | ST-6-01 | TC-11 | " " |
| 30 | .01 | 600 | | 684-01 | GT6S1 | ST-6-01 | TC-11 | " " |
| 31 | .01 | 600 | | 684-01 | GT6S1 | ST-6-01 | TC-11 | " " |
| 32 | .01 | 600 | | 684-01 | GT6S1 | ST-6-01 | TC-11 | " " |
| 33 | .1 | 600 | | 684-.1 | GT6P1 | ST-6-1 | TC-1 | Mic. Amp. 1 Screen Byp. |
| 34 | .1 | 600 | | 684-.1 | GT6P1 | ST-6-1 | TC-1 | Mic. Amp. 2 " " |
| 35 | .1 | 600 | | 684-.1 | GT6P1 | ST-6-1 | TC-1 | Mic. Amp. 3 " " |
| 36 | .1 | 600 | | 684-.1 | GT6P1 | ST-6-1 | TC-1 | Mic. Amp. 4 " " |
| 37 | .005 | 600 | | 684-005 | GT6D5 | ST-6-005 | TC-25 | Audio Coupling-Note |
| 38 | .005 | 600 | | 684-005 | GT6D5 | ST-6-005 | TC-25 | " " " |
| 39 | .005 | 600 | | 684-005 | GT6D5 | ST-6-005 | TC-25 | " " |
| 40 | .005 | 600 | | 684-005 | GT6D5 | ST-6-005 | TC-25 | " " |
| 41 | 500 | 500 | | 1468-0005 | 5W5T5 | MO.5-35 | 1FM-35 | AF Grid Bypass |
| 42 | 500 | 500 | | 1468-0005 | 5W5T5 | MO.5-35 | 1FM-35 | Tone Compensation |
| 43 | 500 | 500 | | 1468-0005 | 5W5T5 | MO.5-35 | 1FM-35 | " " " |

Note-Not used in all models.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: MASCO PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 44A | 500KΩ | ½ | | D13-133 | M-60-Z | Mike 1 Control |
| B | Shaft | | | A | Not Req. | Attach to 44A per instructions |
| 45A | 500KΩ | ½ | | D13-133 | M-60-Z | Mike 2 Control |
| B | Shaft | | | A | Not Req. | Attach to 45A per instructions |
| 46A | 500KΩ | ½ | | D13-133 | M-60-Z | Mike 3 Control |
| B | Shaft | | | A | Not Req. | Attach to 46A per instructions |
| 47A | 500KΩ | ½ | | D13-133 | M-60-Z | Mike 4 Control |
| B | Shaft | | | A | Not Req. | Attach to 47A per instructions |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

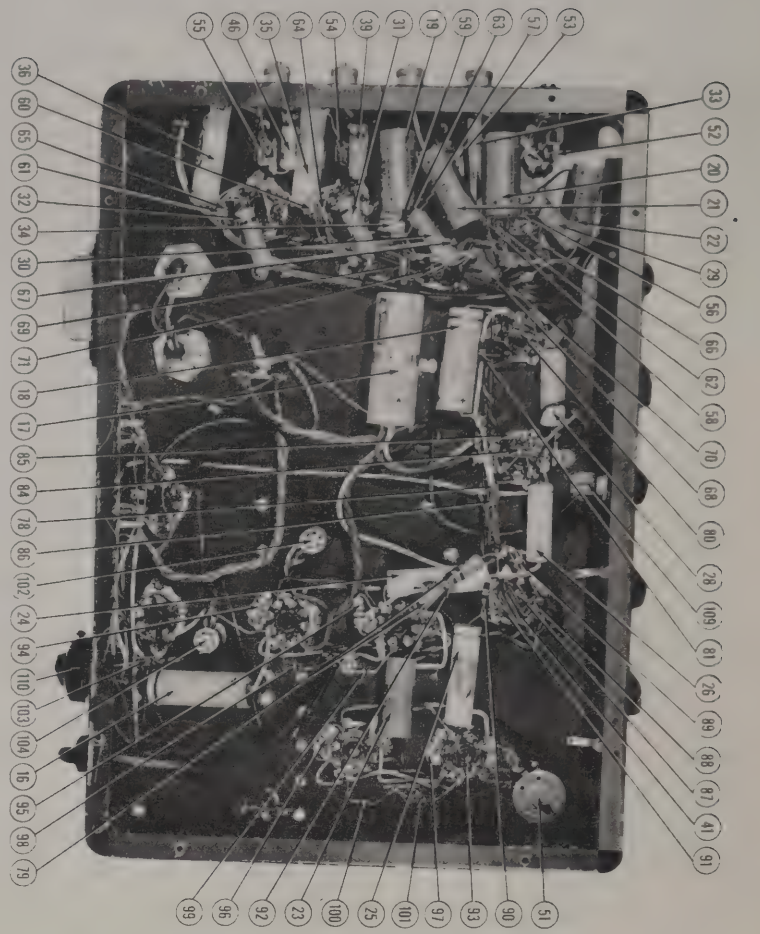
## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | MASCO PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 48A | 500KΩ | ½ | | D13-133 | M-60-Z | Phono Control |
| B | Shaft | | | A | Not Req. | Attach to 48A per instructions |
| 49A | 500KΩ | ½ | | D13-133 | M-60-Z | Bass Control |
| B | Shaft | | | A | Not Req. | Attach to 49A per instructions |
| 50A | 500KΩ | ½ | | D13-133 | M-60-Z | Treble Control |
| B | Shaft | | | A | Not Req. | Attach to 50A per instructions |
| 51 | 50Ω | 1 | | W-50 | 43-50 | Hum Bal. Control |

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | MASCO PART No. | IRC PART No. | |
| 52 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. 1st Mic. Amp. Grid |
| 53 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. 2nd Mic. Amp. Grid |
| 54 | 15 Meg. | ½ | | BTS-15 Meg. | Br.-Grn.-Blue 3rd Mic. Amp. Grid |
| 55 | 15 Meg. | ½ | | BTS-15 Meg. | Br.-Grn.-Blue 4th Mic. Amp. Grid |
| 56 | 1000Ω | ½ | | BTS-1000 | Br.-Blk.-Red 1st Mic. Amp. Cathode |
| 57 | 1000Ω | ½ | | BTS-1000 | Br.-Blk.-Red 2nd Mic. Amp. Cathode |
| 58 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 1st Mic. Amp. Screen Dropping |
| 59 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 2nd Mic. Amp. Screen Dropping |
| 60 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 3rd Mic. Amp. Screen Dropping |
| 61 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 4th Mic. Amp. Screen Dropping |
| 62 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. 1st Mic. Amp. Plate Load |
| 63 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. 2nd Mic. Amp. Plate Load |
| 64 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. 3rd Mic. Amp. Plate Load |
| 65 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. 4th Mic. Amp. Plate Load |
| 66 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. 1st Mic. Amp. Cathode Bias |
| 67 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. 2nd Mic. Amp. " " |
| 68 | 47KΩ | ½ | | BTS-47K | Yl.-Vi.-Or. 1st Mic. Amp. Decoupling |
| 69 | 47KΩ | ½ | | BTS-47K | Yl.-Vi.-Or. 2nd Mic. Amp. Decoupling |
| 70 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. 1st Mic. Amp. Voltage Dropping |
| 71 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. 2nd " " " " |
| 72 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Isolation |
| 73 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. " |
| 74 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. " |
| 75 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. " |
| 76 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. " |
| 77 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. " |
| 78 | 47KΩ | ½ | | BTS-47K | Yl.-Vi.-Or. Decoupling |
| 79 | 10KΩ | 1 | | BTA-10K | Br.-Blk.-Or. " |
| 80 | 1000Ω | ½ | | BTS-1000 | Br.-Blk.-Red AF Cathode |
| 81 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. AF Plate Load |
| 82 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. Tone Compensation |
| 83 | 27KΩ | ½ | | BTS-27K | Red-Vi.-Or. " " |
| 84 | 2200Ω | ½ | | BTS-2200 | Red-Red-Red AF Cathode |
| 85 | 47KΩ | ½ | | BTS-47K | Yl.-Vi.-Or. AF Plate Load |
| 86 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. AF Plate Decoupling |
| 87 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. AF Grid |
| 88 | 1000Ω | ½ | | BTS-1000 | Br.-Blk.-Red AF Cathode |
| 89 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. AF Plate Load |
| 90 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Phase Inverter Plate Load |
| 91 | 3300Ω | ½ | | BTS-3300 | Or.-Or.-Red Phase Inverter Grid |
| 92 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Output Grid |
| 93 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. " " |
| 94 | 250Ω | ½ | | BW-½-270 | Red-Grn.-Br. Parasitic Suppressor |
| 95 | 250Ω | ½ | | BW-½-270 | Red-Grn.-Br. " " |
| 96 | 250Ω | ½ | | BW-½-270 | Red-Grn.-Br. " " |
| 97 | 250Ω | ½ | | BW-½-270 | Red-Grn.-Br. " " |
| 98 | 100Ω | ½ | | BW-½-100 | Br.-Blk.-Br. " " |
| 99 | 100Ω | ½ | | BW-½-100 | Br.-Blk.-Br. " " |
| 100 | 100Ω | ½ | | BW-½-100 | Br.-Blk.-Br. " " |
| 101 | 100Ω | ½ | | BW-½-100 | Br.-Blk.-Br. " " |
| 102 | 100Ω | 20 | | DG-100 | Output Cathode |
| 103 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. Feedback |
| 104 | 2500Ω | 10 | | AB-2500 | Filter |

# CHASSIS—BOTTOM VIEW




# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | MASCO PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. |
| 105 | 117V AC @ 1.73A | 650V CT @ 235A | 5.35VAC DC @ 4.0A | 6.4V AC @ 5.9A | P-50 | P-6315†# | T22R34 | P-3156†# |

#Add series resistor to reduce plate voltage.
†Drill new mounting holes and mount vertically with universal mounting brackets.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | MASCO PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 106 | 3500Ω CT | 4Ω | 100Ω CT | .4Ω | T-50 | A-3802* | T22S78 | A-3129 | *Drill new mounting holes. |
| | | 8Ω | | .5Ω | | | | | |
| | | 15Ω | | .6Ω | | | | | |
| | | 125Ω | | 13Ω | | | | | |
| | | 250Ω | | 18.5Ω | | | | | |
| | | 500Ω | | 26.5Ω | | | | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | MASCO PART No. | | |
| 107 | Bayonet | 6-8 | 0.25 | Blue | | | Type 44 |
| 108 | " | " | " | " | | | " |

## MISCELLANEOUS

| ITEM No. | PART NAME | MASCO PART No. | NOTES |
|---|---|---|---|
| 109 | Switch | | On-Off |
| 110 | " | | Impedance Selector |
| 111 | Fuse | | 3 Amp. |

SPEAKERS

1. (a) This amplifier is designed for use with PM speakers or PM re-entrant horns only. If electro-dynamic speakers are to be used a separate exciter supply must be employed.

   (b) Determine the number of speakers required and select the desired types. Make sure that the sum of the power ratings of the speakers selected is approximately equal to the rated output of the amplifier, namely 50 watts. For example: If the speakers are rated at 10 watts each, 5 speakers are required for a 50 watt amplifier.

2. (a) Connect the speakers or speaker lines to the output sockets through the use of one or two six-prong plugs. Pins #2 & #5 of the plugs should be used for the connections. Note that both output sockets are internally connected in parallel.

   (b) For running voice coil cables use wire #18 or heavier, twisted or parallel. For cable lengths exceeding 75 feet use the "line" impedance taps and employ "line" matching transformers on the speakers.

3. Select the proper output impedance by rotating the impedance selector until the desired impedance tap is visible through the small opening in the selector.

   DO NOT ROTATE THE SELECTOR WHILE THE AMPLIFIER IS OPERATING.

   The proper impedance tap to be used is determined by the impedance of the speakers, the number of speakers or lines and method of connection. The tap setting for speakers (or lines) of the same impedance connected in parallel is equal to the impedance of one speaker or line divided by the total number of such speakers (or lines). Thus two 15 ohm trumpet speakers in parallel should be connected to 15/2 = 7½ ohms (use 8 ohm setting). Similarly two 500 ohm lines in parallel are connected to 250 ohms. In series operation of equal impedances the net impedance is equal to the impedance of one speaker or line times the total number. Thus four 4 ohm speakers in series equal 16 ohms (use 15 ohm tap).

VOLTAGE BETWEEN FILAMENT PINS IS 6.4V AC.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6J7 | 0V. | 22VDC | 55VDC | 50VDC | 2.5VDC | 0V. | 22VDC | 2.5VDC | 0V. |
| 2 | 6J7 | 0V. | 22VDC | 55VDC | 50VDC | 2.5VDC | 0V. | 22VDC | 2.5VDC | 0V. |
| 3 | 6J7 | 0V. | 22VDC | 20VDC | 22VDC | 0V. | 0V. | 22VDC | 0V. | 0V. |
| 4 | 6J7 | 0V. | 22VDC | 25VDC | 24VDC | 0V. | 0V. | 22VDC | 0V. | 0V. |
| 5 | 6SC7 | 0V. | 55VDC | 0V. | 0V. | 55VDC | .6VDC | 22VDC | 22VDC | - |
| 6 | 6SJ7 | 0V. | 22VDC | 55VDC | 0V. | 1.3VDC | 55VDC | 22VDC | 55VDC | - |
| 7 | 6SC7 | 0V. | 135VDC | 0V. | 0V. | 135VDC | 1.5VDC | 22VDC | 22VDC | - |
| 8 | 6L6G | 0V. | 22VDC | 340VDC | 300VDC | 0V. | 0V. | 22VDC | 22VDC | - |
| 9 | 6L6G | 0V. | 22VDC | 340VDC | 300VDC | 0V. | 0V. | 22VDC | 22VDC | - |
| 10 | 6L6G | 0V. | 22VDC | 340VDC | 300VDC | 0V. | 0V. | 22VDC | 22VDC | - |
| 11 | 6L6G | 0V. | 22VDC | 340VDC | 300VDC | 0V. | 0V. | 22VDC | 22VDC | - |
| 12 | 5U4G | 0V. | 340VDC | 0V. | 325VAC | 0V. | 325VAC | 0V. | 340VDC | - |
| 13 | 5U4G | 0V. | 340VDC | 0V. | 325VAC | 340VDC | 325VAC | 0V. | 340VDC | - |

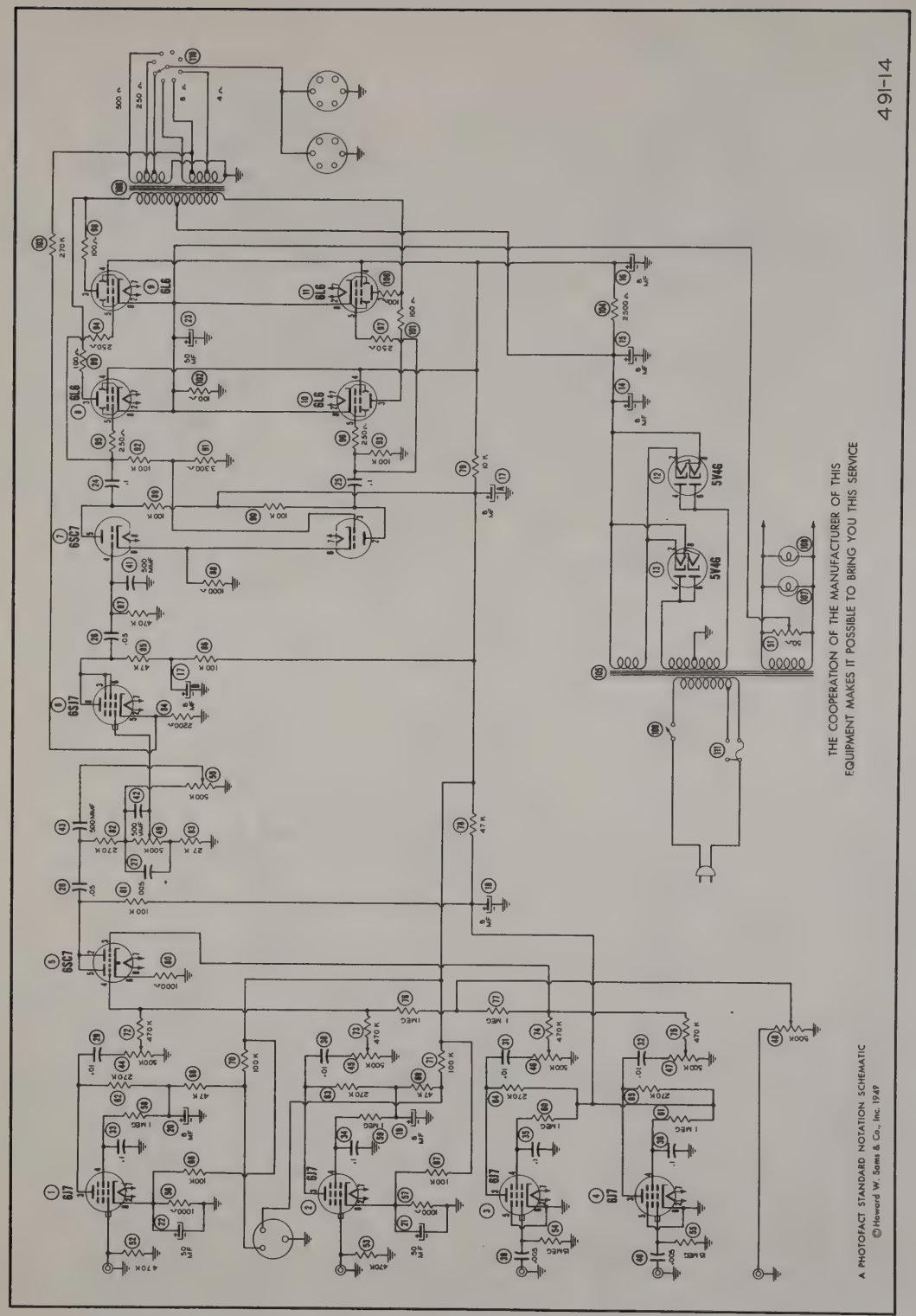
RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6J7 | 0Ω | 125Ω | 460KΩ | 1.2 Meg. | 1KΩ | INF. | 125Ω | 1KΩ | 470KΩ |
| 2 | 6J7 | 0Ω | 125Ω | 460KΩ | 1.2 Meg. | 1KΩ | INF. | 125Ω | 1KΩ | 470KΩ |
| 3 | 6J7 | 0Ω | 125Ω | 360KΩ | 1.1 Meg. | 0Ω | INF. | 125Ω | 0Ω | 15 Meg. |
| 4 | 6J7 | 0Ω | 125Ω | 360KΩ | 1.1 Meg. | 0Ω | INF. | 125Ω | 0Ω | 15 Meg. |
| 5 | 6SC7 | 0Ω | 190KΩ | 180KΩ | 180KΩ | 190KΩ | 1KΩ | 125Ω | 125Ω | - |
| 6 | 6SJ7 | 0Ω | 125Ω | 190KΩ | 25KΩ | 2.2KΩ | 190KΩ | 125Ω | 190KΩ | - |
| 7 | 6SC7 | 0Ω | 140KΩ | 3.3KΩ | 470KΩ | 140KΩ | 1KΩ | 125Ω | 125Ω | - |
| 8 | 6L6G | INF. | 125Ω | 30KΩ | 32KΩ | 100KΩ | 100KΩ | 125Ω | 100Ω | - |
| 9 | 6L6G | INF. | 125Ω | 30KΩ | 32KΩ | 100KΩ | 100KΩ | 125Ω | 100Ω | - |
| 10 | 6L6G | 0Ω | 125Ω | 30KΩ | 32KΩ | 100KΩ | 100KΩ | 125Ω | 100Ω | - |
| 11 | 6L6G | INF. | 125Ω | 30KΩ | 32KΩ | 100KΩ | 100KΩ | 125Ω | 100Ω | - |
| 12 | 5U4G | INF. | 30KΩ | INF. | 24Ω | INF. | 22Ω | INF. | 30KΩ | - |
| 13 | 5U4G | INF. | 30KΩ | INF. | 24Ω | 30KΩ | 22Ω | INF. | 30KΩ | - |

1 - DC Voltage measurements are at 20,000 ohms per volts;
AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

| STAGE GAIN MEASUREMENTS | | |
|---|---|---|
| MIC. AMP. 1 | 70X | 400 ∿ |
| MIC. AMP. 2 | 70X | 400 ∿ |
| MIC. AMP. 3 | 25X | 400 ∿ |
| MIC. AMP. 4 | 25X | 400 ∿ |
| MIXER | 8X | 400 ∿ |
| AUDIO | 3X | 400 ∿ |
| AUDIO | 15X | 400 ∿ |
| OUTPUT | 30X | 400 ∿ |

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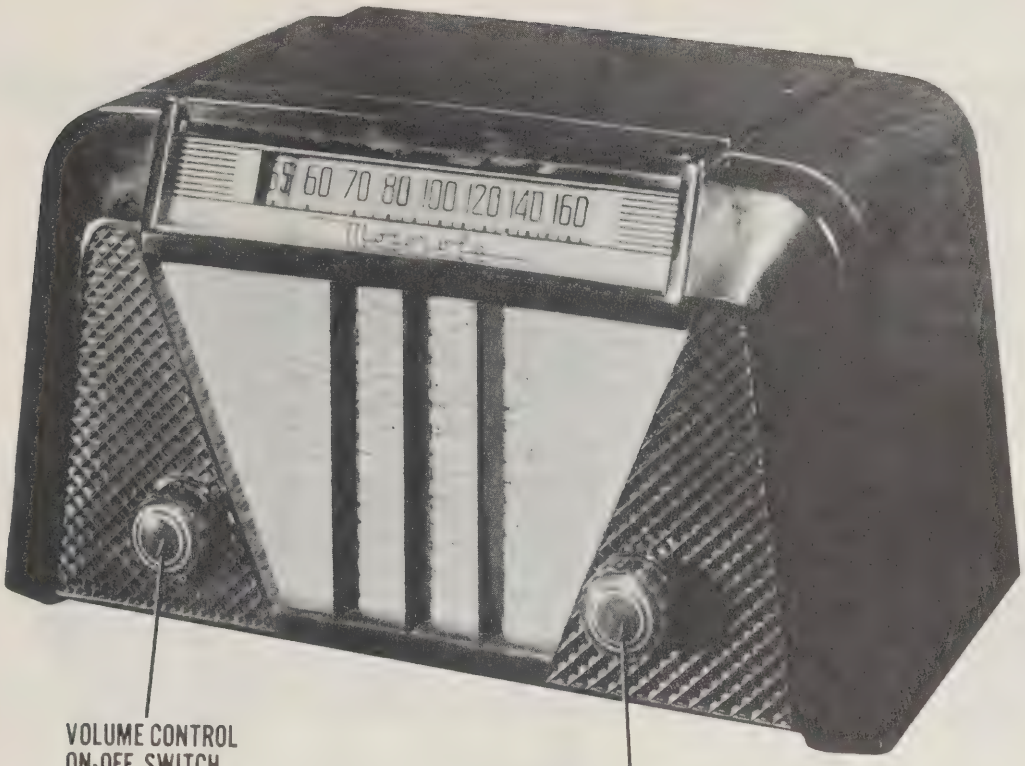
MOTOROLA MODELS
58X11, 58X12 (Ch. HS-125)




MOTOROLA MODELS
58X11, 58X12 (Ch. HS-125)

MOTOROLA MODEL 58X11

| | |
|---|---|
| **TRADE NAME** | Motorola, Model 58X11, 58X12 (Ch. HS-125) |
| **MANUFACTURER** | Motorola Inc., 4545 Augusta Blvd., Chicago, Ill. |
| **TYPE SET** | AC-DC Operated Superheterodyne Receiver with Loop Antenna |
| **TUBES** (FIVE) | Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| **POWER SUPPLY** | 105-125 Volts AC-DC |
| **TUNING RANGE—BROADCAST** | 535-1620KC RATING .23 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

To set dial pointer turn tuning cap. fully closed and set pointer 1-3/4" from left edge of dial backplate mounting bracket. This is the calibration mark referred to in steps below.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to Pin 8 (grid) of 12SA7. Low side to B-. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 2 | | Loop | 1600KC | 4-3/16" from calibration mark. | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. |
| 3 | | " | 1400KC | Tune for maxi-maximum output | " | A6 | Adjust for maximum output. |



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DATE 1/49-#491-15 SET #53-FOLDER #15

# PARTS LIST AND DESCRIPTIONS

MOTOROLA MODEL 58X11

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: MOTOROLA PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 12SA7 | 12SA7 | 8R | |
| 2 | IF Amp. | 12SK7 | 12SK7 | 8N | |
| 3 | 2nd Det.-AVC-AF | 12SQ7 | 12SQ7 | 8Q | |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: MOTOROLA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 6A | 40 | 150 | 23B75808 | PRSA150/40-20 | EZ42215 | DSB-403020-150 | TA-303 | Filter-Red |
| B | 20 | 150 | | PRS150/20 | | | | " -Blue |
| C | 20 | 150 | | | | | | " -Orange |
| 7 | .05 | 400 | 8S9816 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Filter |
| 8 | .15 | 200 | 8A72686 | 484-.15 | GT4P2 | ST-4-2 | 72P3 | Line Isolation |
| 9 | .02 | 400 | 8S9802 | 484-02 | GT4S2 | ST-4-02 | TC-12 | Output Plate Bypass |
| 10 | .005 | 600 | 8S9813 | 684-005 | GT6D5 | ST-6-005 | TC-25 | Audio Coupling |
| 11 | .005 | 600 | 8S9813 | 684-005 | GT6D5 | ST-6-005 | TC-25 | " " |
| 12 | .1 | 200 | 8S9806 | 484-.1 | GT2P1 | ST-2-1 | TC-1 | RF Byp. Pwr. Supply |
| 13 | .05 | 400 | 8S9816 | 484-05 | GT4S5 | ST-4-05 | TC-15 | AVC Filter |
| 14 | 250 | 500 | 21R6640 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | AF Plate Bypass |
| 15 | 250 | 500 | 21R6640 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Diode RF Filter |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: MOTOROLA PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 16A | 1 Meg. | ½ | 12A70032-A | D13-137 | AM-63-Z | Volume Control |
| B | Shaft | | Not Req. | E | KS8-3 | Attach to 16A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: MOTOROLA PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 17 | 22KΩ | ½ | 6R6028 | BTS-22K | Red-Red-Or. Osc. Grid |
| 18 | 1 Meg. | ½ | 6R6004 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 19 | 39Ω | ½ | 6R2085 | BW-½-39 | Or.-White-Blk. IF Cathode |
| 20 | 4.7 Meg. | ½ | 6R2122 | BTS-4.7 Meg. | Yl.-Vi.-Grn. AF Grid |
| 21 | 220KΩ | ½ | 6R6015 | BTS-220K | Red-Red-Yl. AF Plate Load |
| 22 | 470KΩ | ½ | 6R6032 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 23 | 150Ω | ½ | 6R6373 | BW-½-150 | Br.-Grn.-Br. Output Cathode |
| 24 | 1200Ω | 1 | 6R3972 | BTA-1200 | Br.-Red-Red Filter |
| 25 | 220Ω | 1 | 6R6152 | BW-1-220 | Red-Red-Br. " |
| 26 | 27Ω | ½ | 6R5683 | | Red-Vi.-Blk. Surge Limiter |
| 27 | 220K | ½ | 6R6015 | BTS-220K | Red-Red-Yl. Line Isolation |

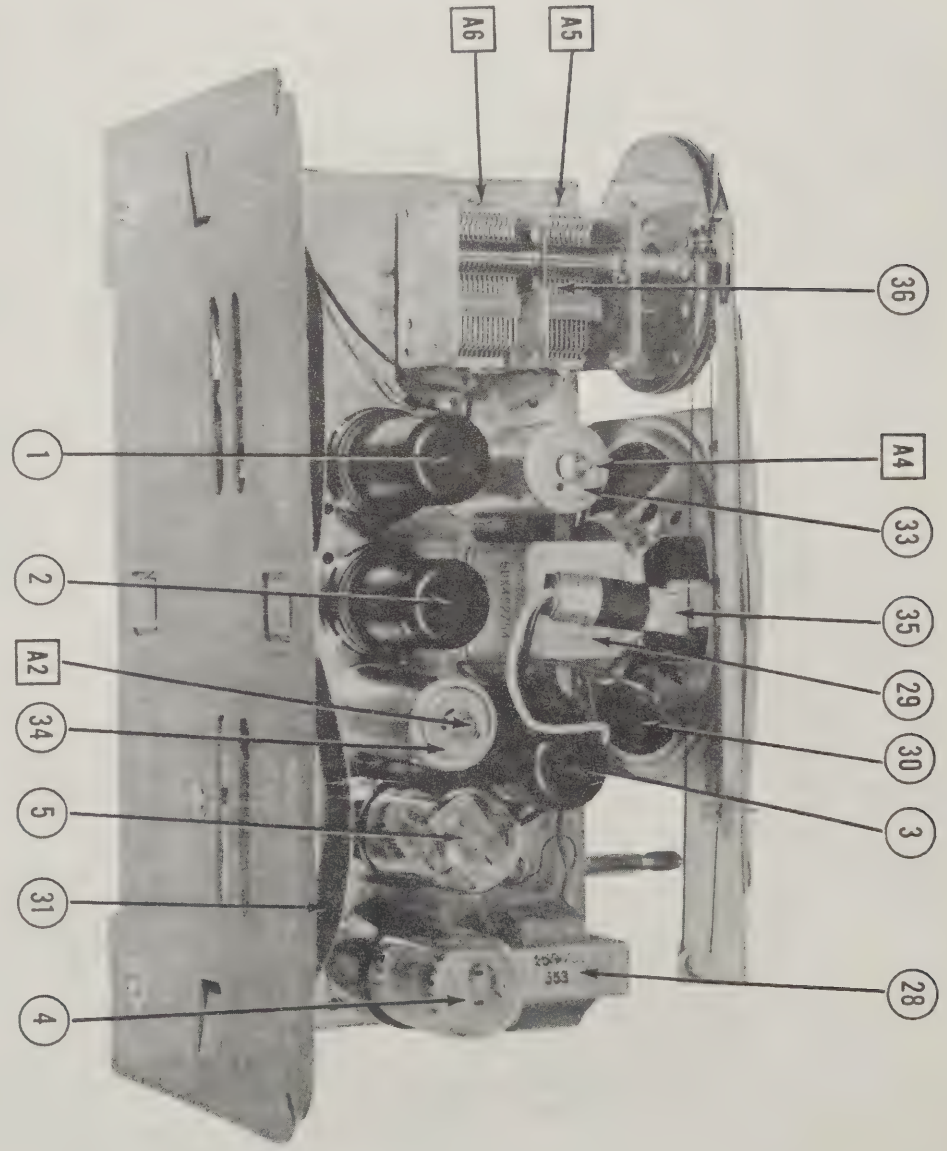
## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: MOTOROLA PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 28 | 2400Ω | 3.4Ω | 260Ω | .8Ω | 25B76117 | A-3876♯ | T22S45♯ | A-2928♯ | ♯Drill one new mounting hole. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: MOTOROLA PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-113† | | †Drill and tap magnet frame. |
| 29 | PM | 3.4Ω | 50K482754 | Mod. P4-X | 4A15† | |
| | CONE DIA. | VC DIA. | | | | |
| 30 | 4" | 5/16" | | | | |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

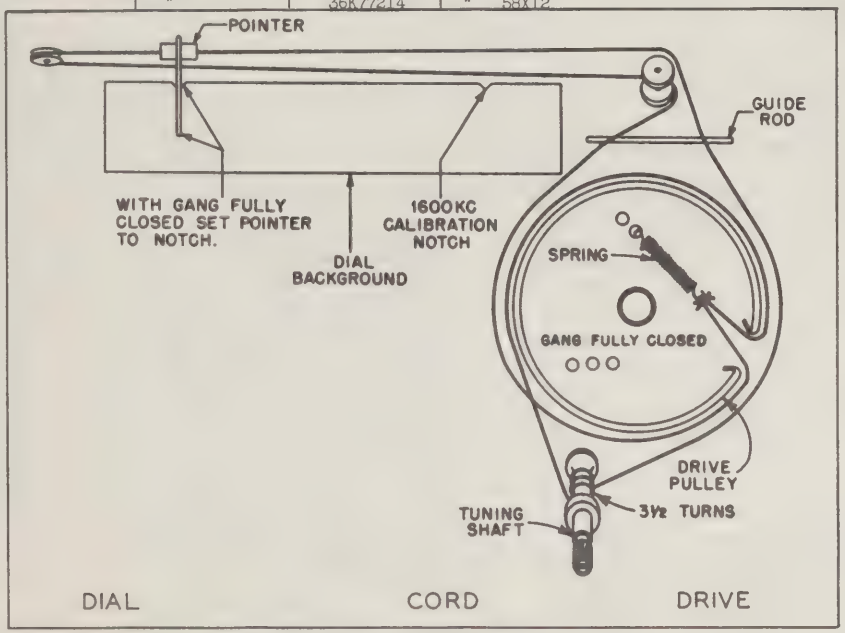
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA MOTOROLA PART No. | REPLACEMENT DATA MEISSNER PART No. | |
|---|---|---|---|---|---|---|
| 31 | Loop Ant. | 0Ω | 2Ω | 24K77096 | | *Add 50MMF from high side tuning cap. to osc. grid. |
| 32 | Osc. Coil | 1.2Ω | 9Ω | 24A74616 | 14-1060* | ‡Complete with iron cores and trimmer capacitors, but less shield (use with shield and sleeve 1A71049) |
| 33A | Input IF | 15Ω | 16Ω | 24B70531‡ | 16-6678 | §Complete with iron cores and trimmer capacitors, but less shield (use with shield and sleeve 26K485936) |
| B | " " | | | 24B482863§ | | |
| 34A | Output IF | 14.5Ω | 13.5Ω | 24B70533 † | 16-6678 | |
| B | " " | | | 24B482865§ | | |

## DIAL LIGHT

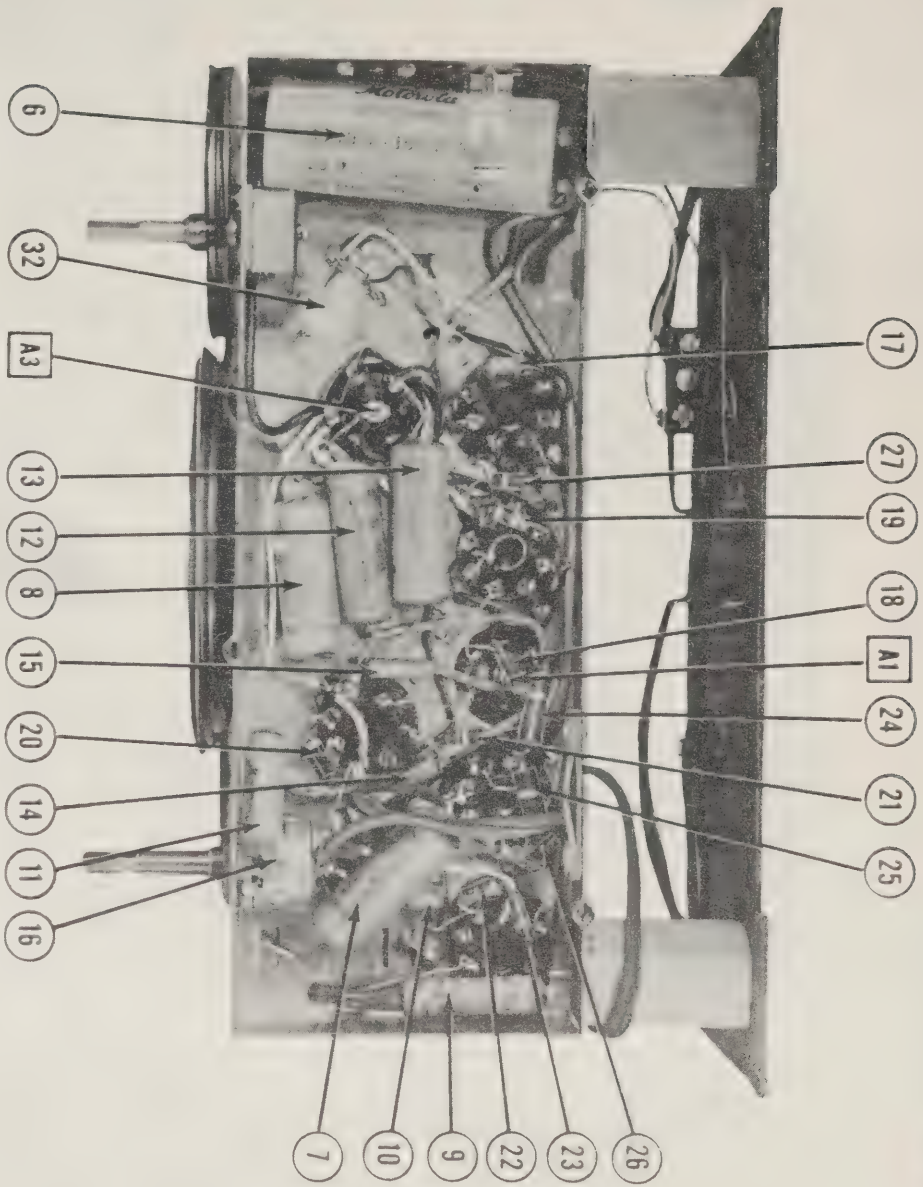
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA MOTOROLA PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 35 | Bayonet | 6-8 | 0.15 | Brown | 68X11854 | | Type #47 |

## MISCELLANEOUS

| ITEM No. | PART NAME | MOTOROLA PART No. | NOTES |
|---|---|---|---|
| 36 | 2 Gang Var. Cap. | 1X77204 | (35-462MMF, 37-202MMF) |
| | Dial Pointer | 52A481378 | |
| | Cabinet | 16E480031 | Model 58X11 |
| | " | 16K481445 | " 58X12 |
| | Dial Scale | 34B481438 | |
| | Knob | 36B77213 | Model 58X11 |
| | " | 36K77214 | " 58X12 |



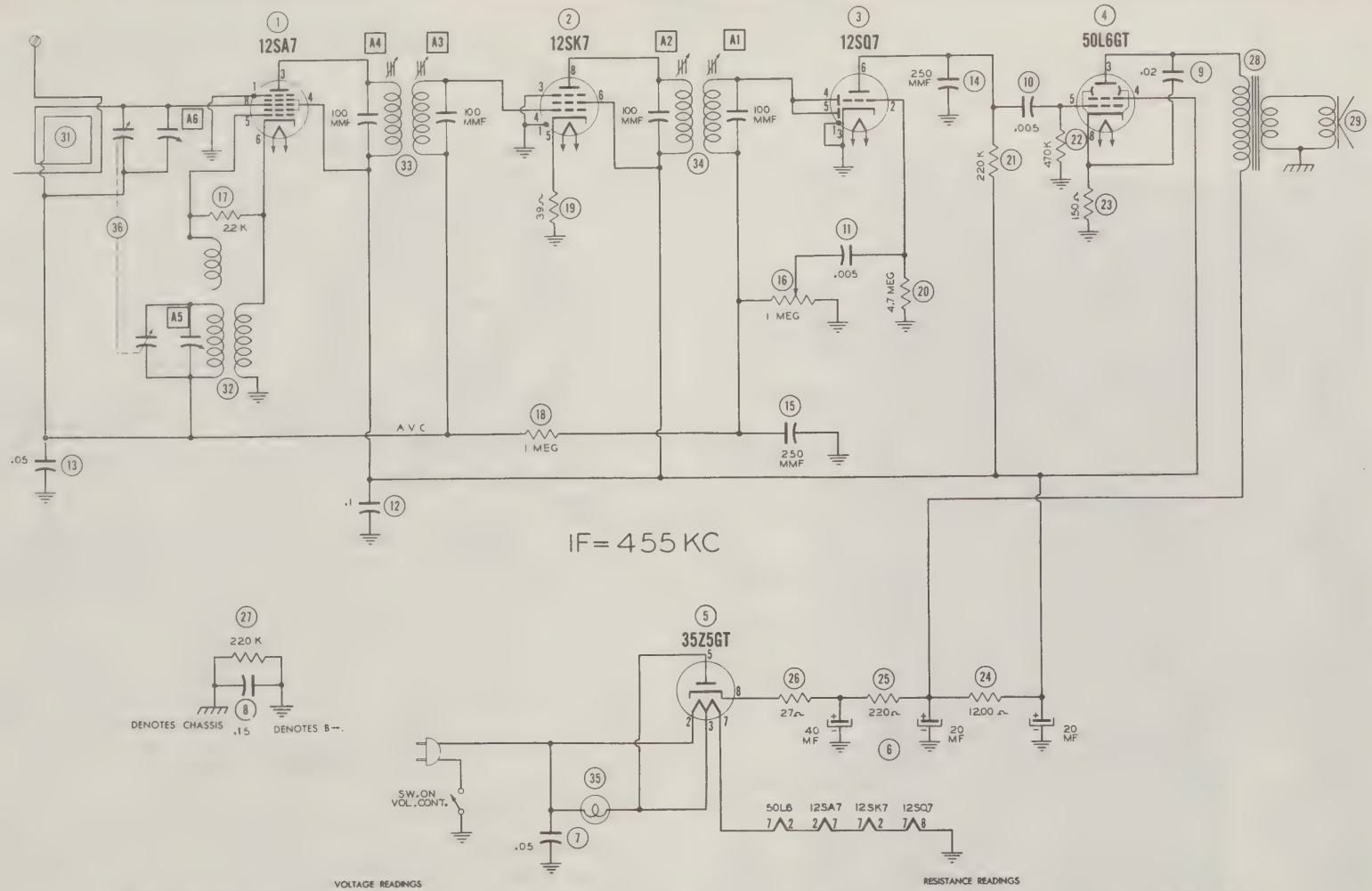

# CHASSIS—BOTTOM VIEW








MOTOROLA MODEL 58X11




IF = 455 KC

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | 0V. | 40VAC | 80VDC | 80VDC | -8.6VDC§ | 0V. | 26VAC | -.2VDC |
| 2 | 12SK7 | 0V. | 13VAC | 0V. | -.2VDC | .4VDC | 80VDC | 26VAC | 80VDC |
| 3 | 12SQ7 | 0V. | -.6VDC | 0V. | -.8VDC | -.8VDC | 60VDC | 13VAC | 0V. |
| 4 | 50L6GT | 0V. | 40VAC | 98VDC | 80VDC | 0V. | 0V. | 85VAC | 5VDC |
| 5 | 35Z5GT | 0V. | 117VAC | 112VAC | 105VDC | 112VAC | 118VDC | 85VAC | 120VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | 220KΩ | 40Ω | 80KΩ | 80KΩ | 22KΩ | 1.2Ω | 27Ω | 2 Meg. |
| 2 | 12SK7 | 220KΩ | 13Ω | 0Ω | 2 Meg. | 39Ω | 80KΩ | 27Ω | 80KΩ |
| 3 | 12SQ7 | 0Ω | 4.7 Meg. | 0Ω | 1 Meg. | 1 Meg. | 300KΩ | 13Ω | 0Ω |
| 4 | 50L6GT | INF. | 40Ω | 80KΩ | 80KΩ | 470KΩ | 0Ω | 90Ω | 150Ω |
| 5 | 35Z5GT | INF. | 110Ω | 108Ω | 80KΩ | 108Ω | 80KΩ | 90Ω | 80KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PACKARD-BELL
MODEL 100

PACKARD-BELL
MODEL 100

PACKARD-BELL MODEL 100

| | |
|---|---|
| **TRADE NAME** | Packard-Bell, Model 100 |
| **MANUFACTURER** | Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif. |
| **TYPE SET** | AC-DC Operated Superheterodyne Receiver with Loop Antenna |
| **TUBES** (FIVE) | Types, 12BE6 or 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| **POWER SUPPLY** | 110-120 Volts AC-DC |
| **TUNING RANGE—BROADCAST** | 540-1620KC RATING .26 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD | High side to rear stator section of tuning cap. Low side to B-. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 2 | | Loop | 1620KC | " | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. Trimmer opposite A5 on osc. section of tuning cap. is a factory adjustment and ordinarily need not be adjusted. |
| 3 | | " | 1400KC | Tune for maximum output. | " | A6 | Adjust for maximum output. |

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DATE 1/49-#491-16 SET #53-FOLDER #16

# PARTS LIST AND DESCRIPTIONS



## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: PACKARD-BELL PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1A | Converter | 12BE6 | 12BE6 | 7CH | |
| B | " | 12SA7 | 12SA7 | 8R | |
| 2 | IF Amp. | 12SK7 | 12SK7 | 8N | |
| 3 | 2nd Det.-AVC-AF | 12SQ7 | 12SQ7 | 8Q | |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: PACKARD-BELL PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 6A | 50 | 150 | | PRSA150/30-50 | EDL5315 | DSB-5030-150 | TA-530 | Filter-Red |
| B | 20 | 150 | | | | | | " -Blue |
| 7 | .05 | 200 | 23017 | 484-05 | GT2S5 | ST-4-05 | TC-15 | Line Filter |
| 8 | .2 | 200 | 23020 | 484-.2 | GT4P2 | ST-4-2 | 72P3 | Line Isolation |
| 9 | .01 | 500 | 23023 | 684-01 | GT6S1 | ST-6-01 | TC-11 | Audio Coupling |
| 10 | .001 | 600 | 23001 | 684-001 | GT6D1 | ST-6-001 | TC-21 | AF Plate Bypass |
| 11 | .05 | 200 | 23017 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 12 | 4000 | 500 | 23208 | 1467-004 | 1D5D4 | MW.5-24 | 1FM-24 | Output Plate Bypass |
| 13 | 4000 | 500 | 23208 | 1467-004 | 1D5D4 | MW.5-24 | 1FM-24 | Audio Coupling |
| 14 | 220 | 300 | 23915 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Diode RF Filter-Cer. |
| 15 | 220 | 300 | 23915 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Osc. Grid Cap. " |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: PACKARD-BELL PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 16A | 500KΩ | ½ | 25014 | D13-133 | M-60-Z | Volume Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 16A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |

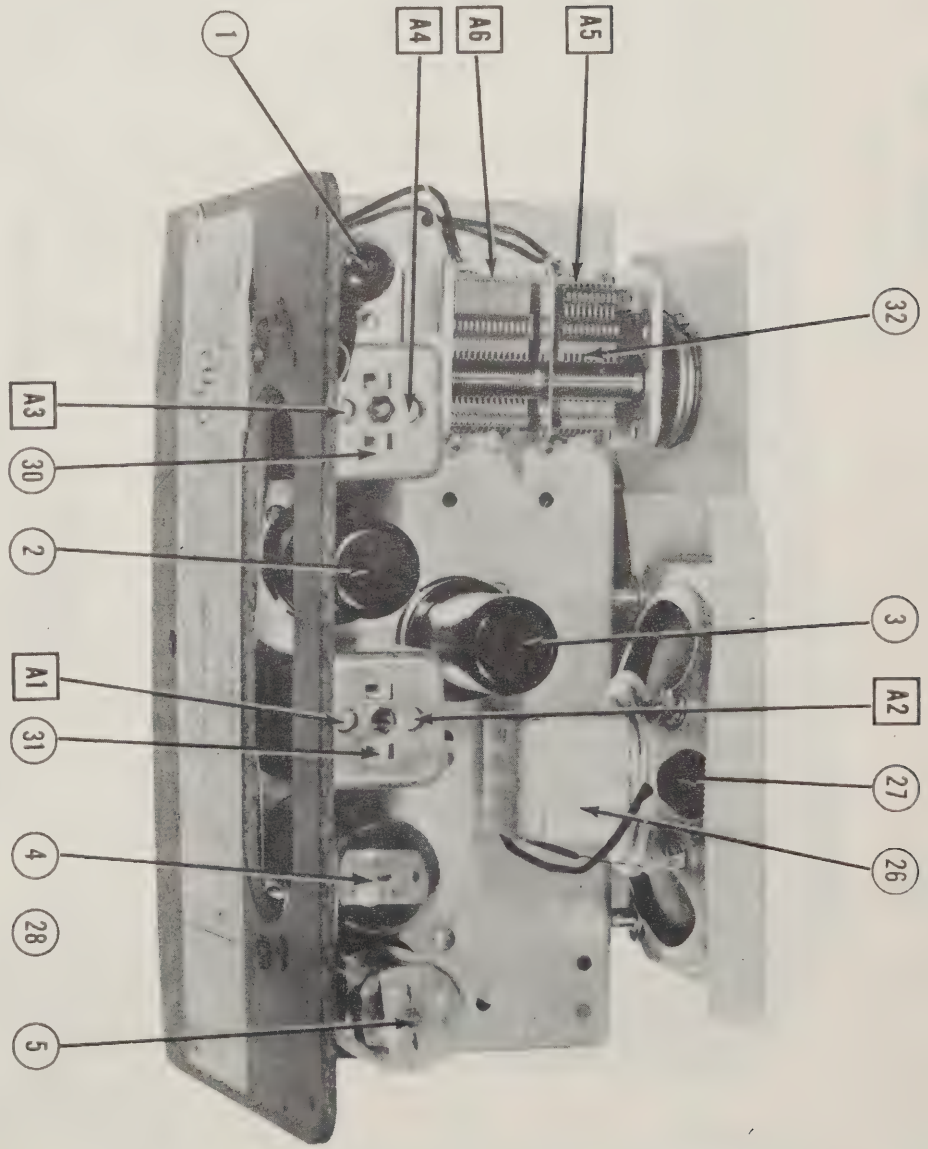
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: PACKARD-BELL PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 17 | 27KΩ | ½ | 73042 | BTS-27K | Red-Vi.-Or. Osc. Grid |
| 18 | 2.2 Meg. | ½ | 73055 | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 19 | 4.7 Meg. | ½ | 73057 | BTS-4.7 Meg. | Yl.-Vi.-Grn. AF Grid |
| 20 | 220KΩ | ½ | 73049 | BTS-220K | Red-Red-Yl. AF Plate Load |
| 21 | 470KΩ | ½ | 73051 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 22 | 150Ω | 1 | 73081 | BW-1-150 | Br.-Grn.-Br. Output Cathode |
| 23 | 1000Ω | 2 | 73120 | BT-2-1000 | Br.-Blk.-Red Filter |
| 24 | 120Ω | ½ | 73014 | BW-½-120 | Br.-Red-Br. IF Cathode |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: PACKARD-B. PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: THORDAR'N PART No. | REPLACEMENT DATA: MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 25 | 1650Ω | 3.1Ω | 135Ω | .7Ω | 89417 | A-3876# | T2S845# | A-2928# | #Drill new mounting holes. |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

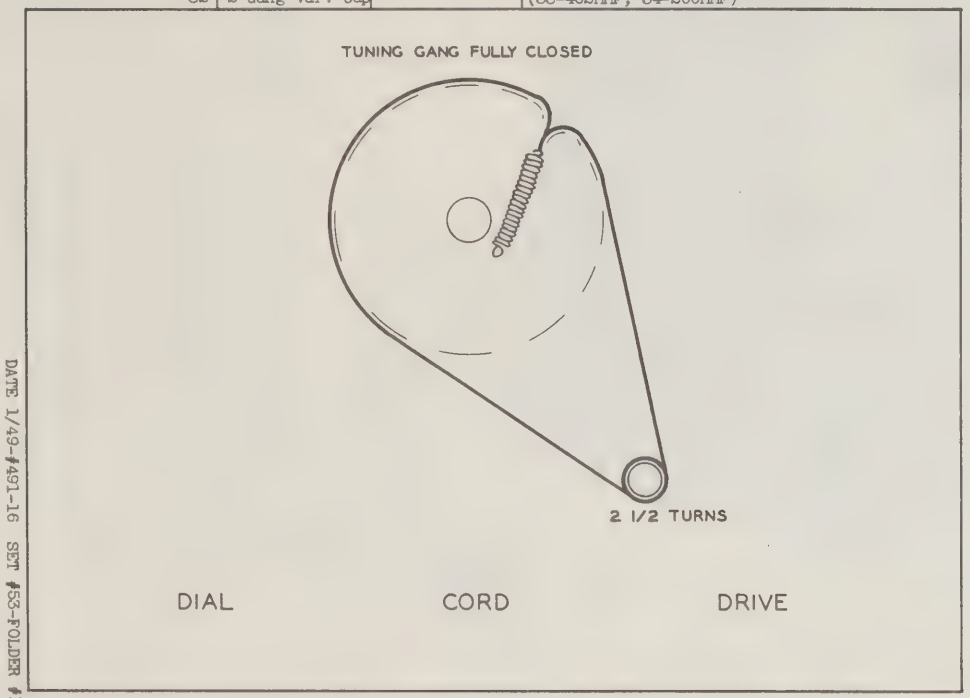
| ITEM No. | RATINGS | | REPLACEMENT DATA: PACKARD-BELL PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 26 | FIELD<br>PM | VC IMP.<br>3.1Ω | 83007 | ST-113<br>Mod. P4-X | 4A15 | |
| 27 | CONE DIA.<br>4" | VC DIA.<br>9/16" | | | | |

## R F COILS

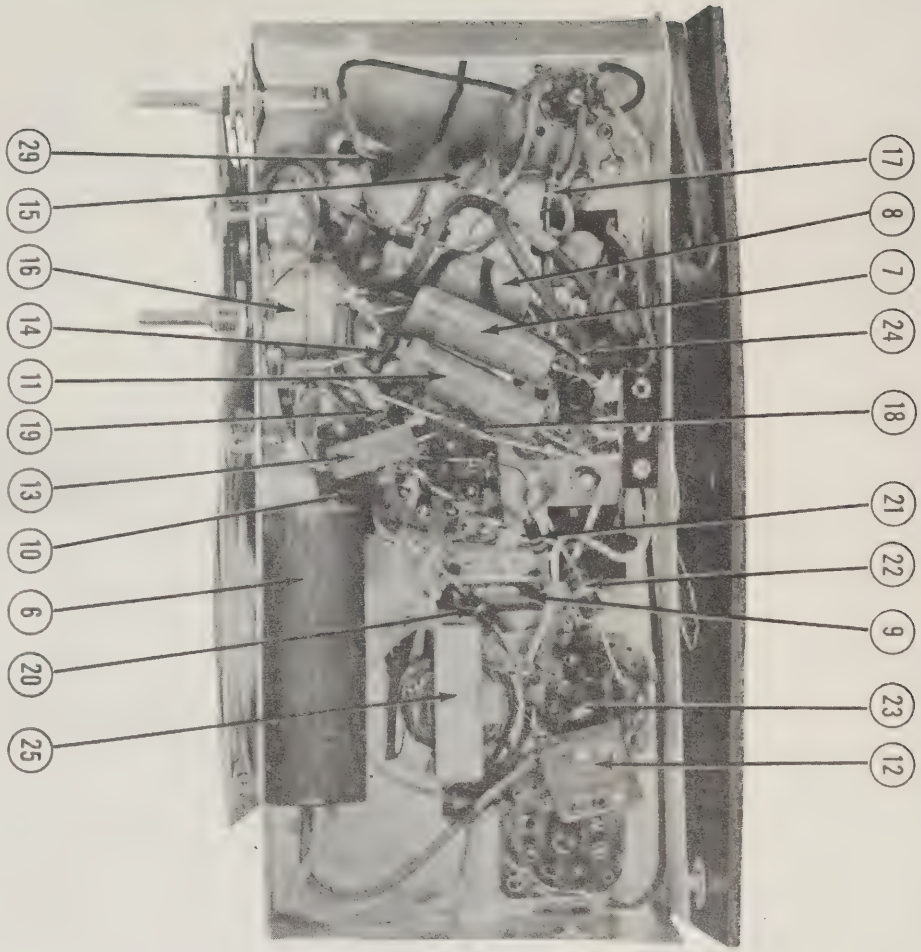
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: PACKARD-BELL PART No. | MEISSNER PART No. | |
|---|---|---|---|---|---|---|
| 28 | Loop Ant. | | 3.5Ω | | | |
| 29 | Osc. Coil | .8Ω | 5.5Ω | | 14-1060 | |
| 30 | Input IF | 17Ω | 17Ω | | 16-6658 | |
| 31 | Output IF | 18Ω | 18Ω | | 16-6660 | |

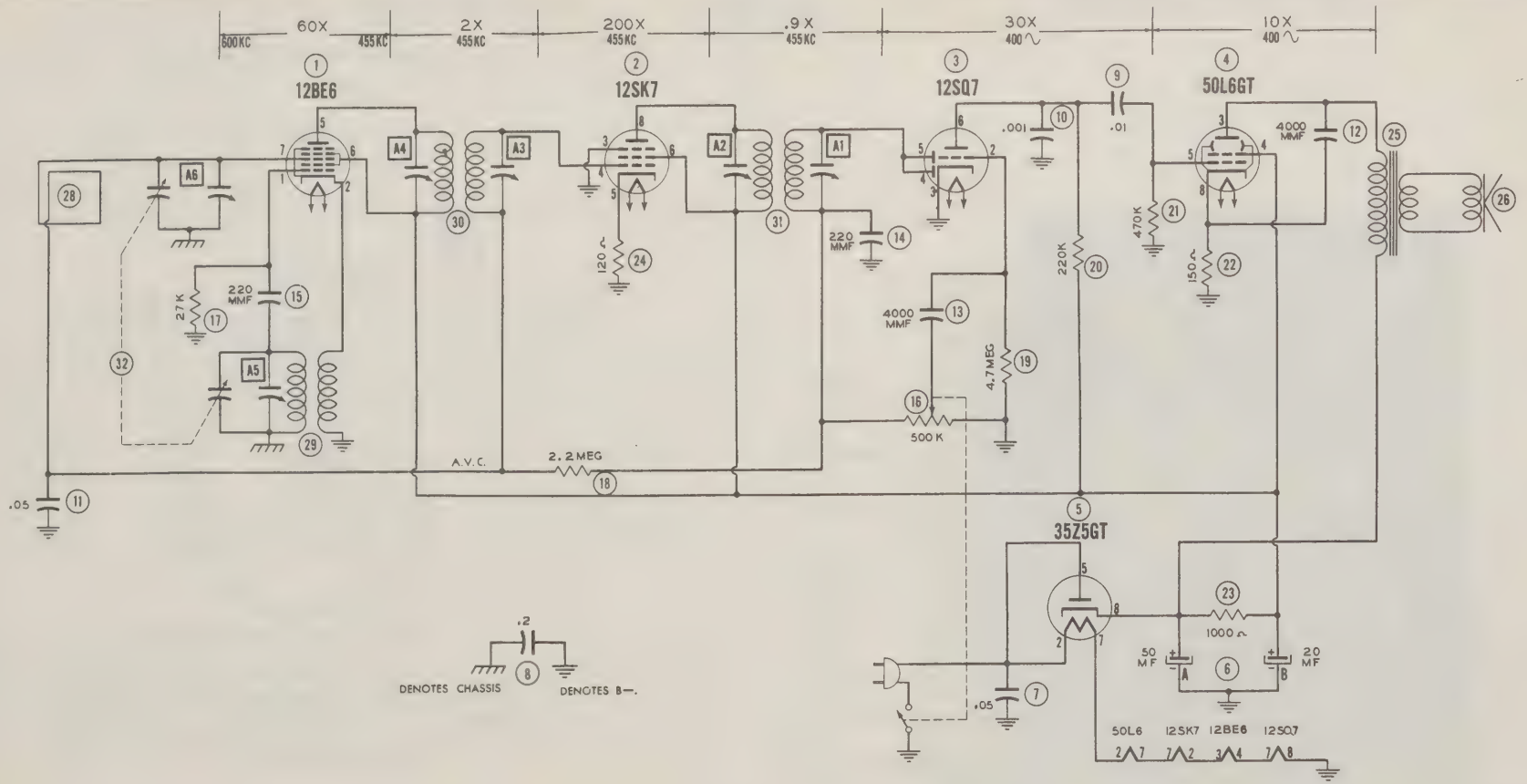
## MISCELLANEOUS

| ITEM No. | PART NAME | PACKARD-BELL PART No. | NOTES |
|---|---|---|---|
| 32 | 2 Gang Var. Cap | | (33-462MMF, 34-200MMF) |




# CHASSIS—BOTTOM VIEW






IF=455 KC

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12BE6 | -12VDC§ | 0V. | 27VAC | 13VAC | 105VDC | 105VDC | -.1VDC | - |
| 2 | 12SK7 | 0V. | 27VAC | 0V. | -.1VDC | 1.6VDC | 105VDC | 40VAC | 105VDC |
| 3 | 12SQ7 | 0V. | -.4VDC | 0V. | -.9VDC | -.9VDC | 65VDC | 13VAC | 0V. |
| 4 | 50L6GT | 0V. | 90VAC | 128VDC | 105VDC | 0V. | 0V. | 40VAC | 6.3VDC |
| 5 | 35Z5GT | 0V. | 117VAC | 110VAC | 0V. | 117VAC | 105VDC | 90VAC | 135VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12BE6 | 27KΩ | .8Ω | 24Ω | 13Ω | 200KΩ | 200KΩ | 2.7 Meg. | - |
| 2 | 12SK7 | INF. | 24Ω | 0Ω | 2.7 Meg. | 120Ω | 200KΩ | 38Ω | 200KΩ |
| 3 | 12SQ7 | INF. | 4.7 Meg. | 0Ω | 500KΩ | 500KΩ | 420KΩ | 13Ω | 0Ω |
| 4 | 50L6GT | INF. | 85Ω | 200KΩ | 200KΩ | 470KΩ | INF. | 38Ω | 150Ω |
| 5 | 35Z5GT | INF. | 120Ω | 115Ω | INF. | 120Ω | 200KΩ | 85Ω | 200KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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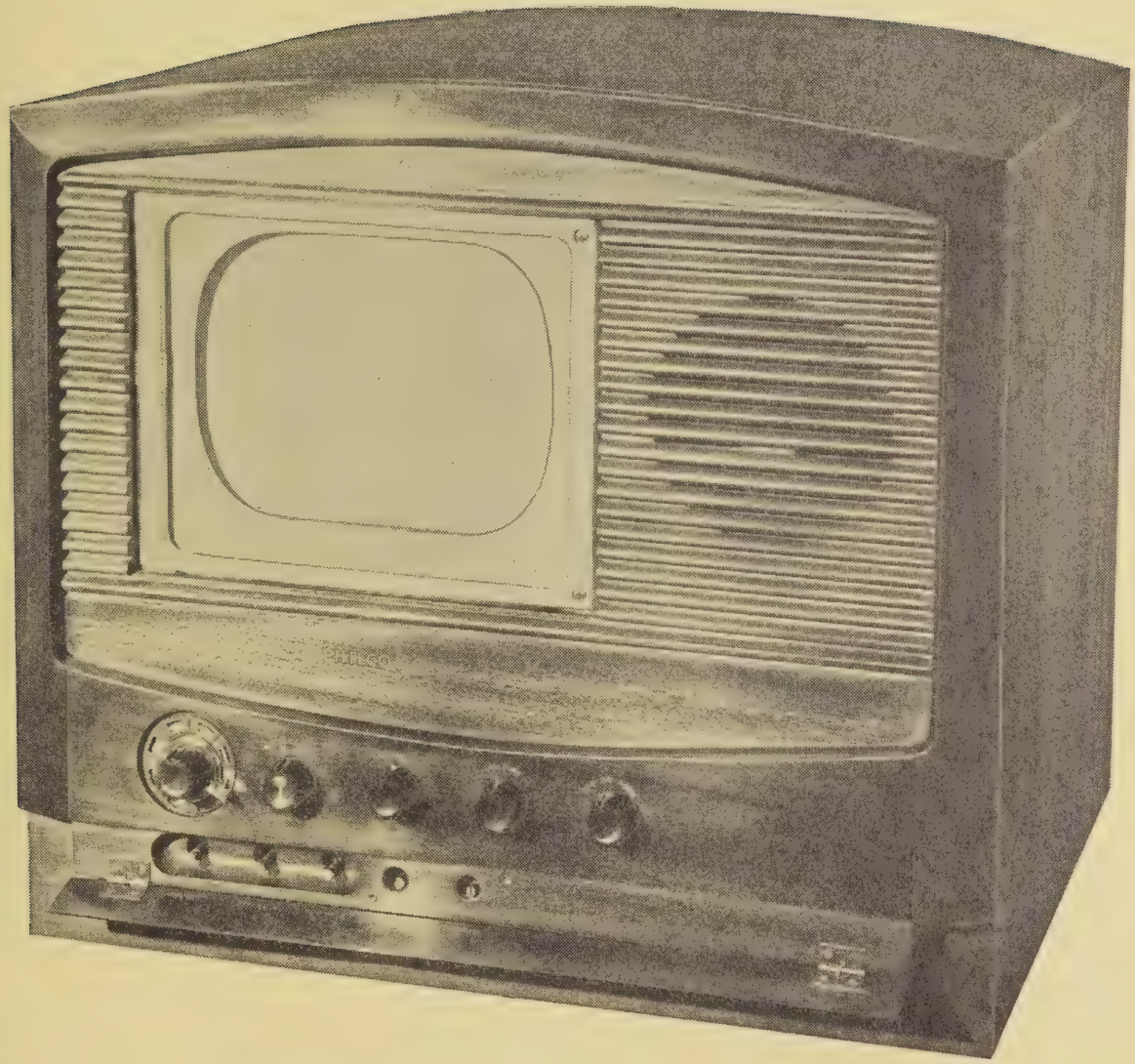
491-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

# PHILCO MODELS
# 48-1000, 48-1001, 48-1050



PHILCO MODELS
48-1000, 48-1001, 48-1050

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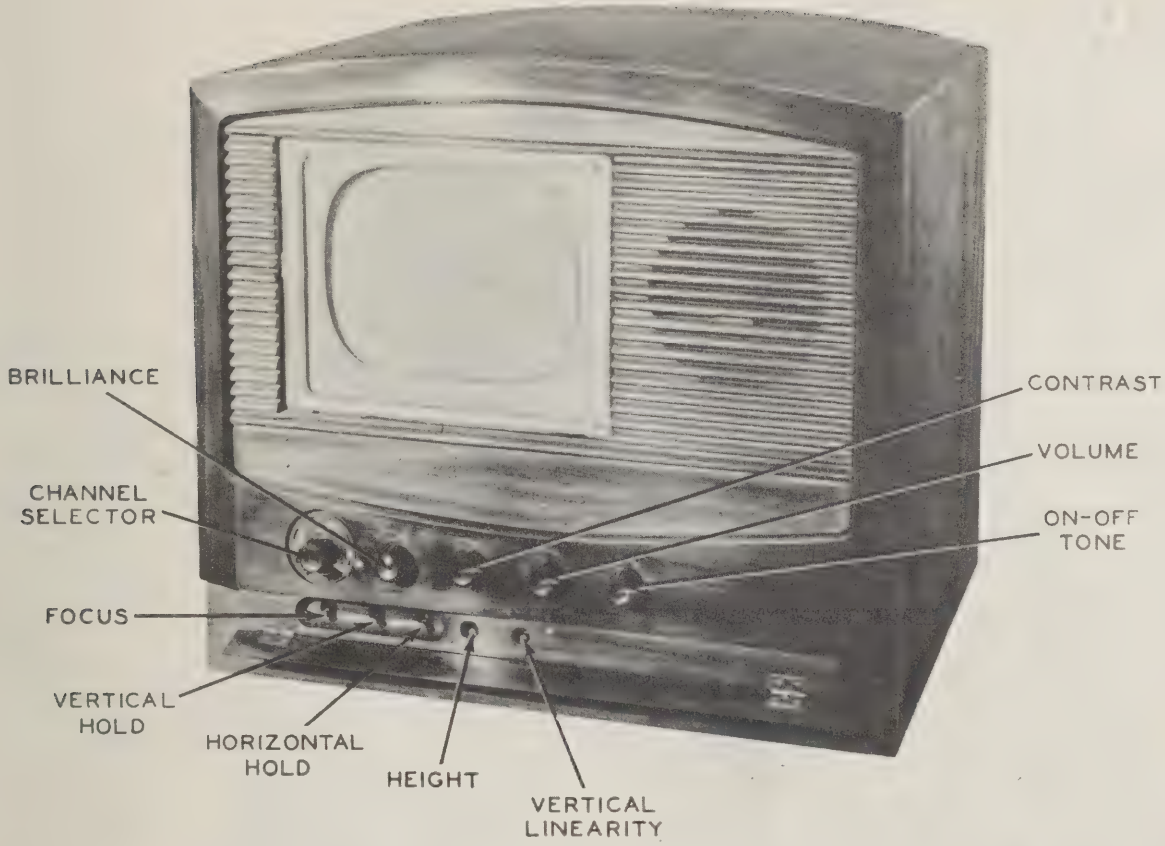
**Date 1/49—No. 491-17 Set No. 53—Folder No. 17**

PHOTOFACT* Folder

*TRADE MARK

# PHILCO MODELS 48-1000, 48-1001, 48-1050




PHILCO MODELS 48-1000, 48-1001, 48-1050

PHILCO MODEL 48-1001

| | |
|---|---|
| **TRADE NAME** | Philco, Models 48-1000, 48-1000-5, 48-1001, 48-1001-5, 48-1050, 48-1050-5 |
| **MANUFACTURER** | Philco Corp., Tioga & C Sts., Philadelphia, Pa. |
| **TYPE SET** | Television Receiver |
| **TUBES** | Twenty-seven |
| **POWER SUPPLY** | 105-125 Volts 60 Cycle (48-1000-5, 48-1001-5, 48-1050-5)only, 50 Cycle) |
| **TUNING RANGE—** | Channels 2 through 13 RATING 2.5 Amps. @ 117 Volts AC |

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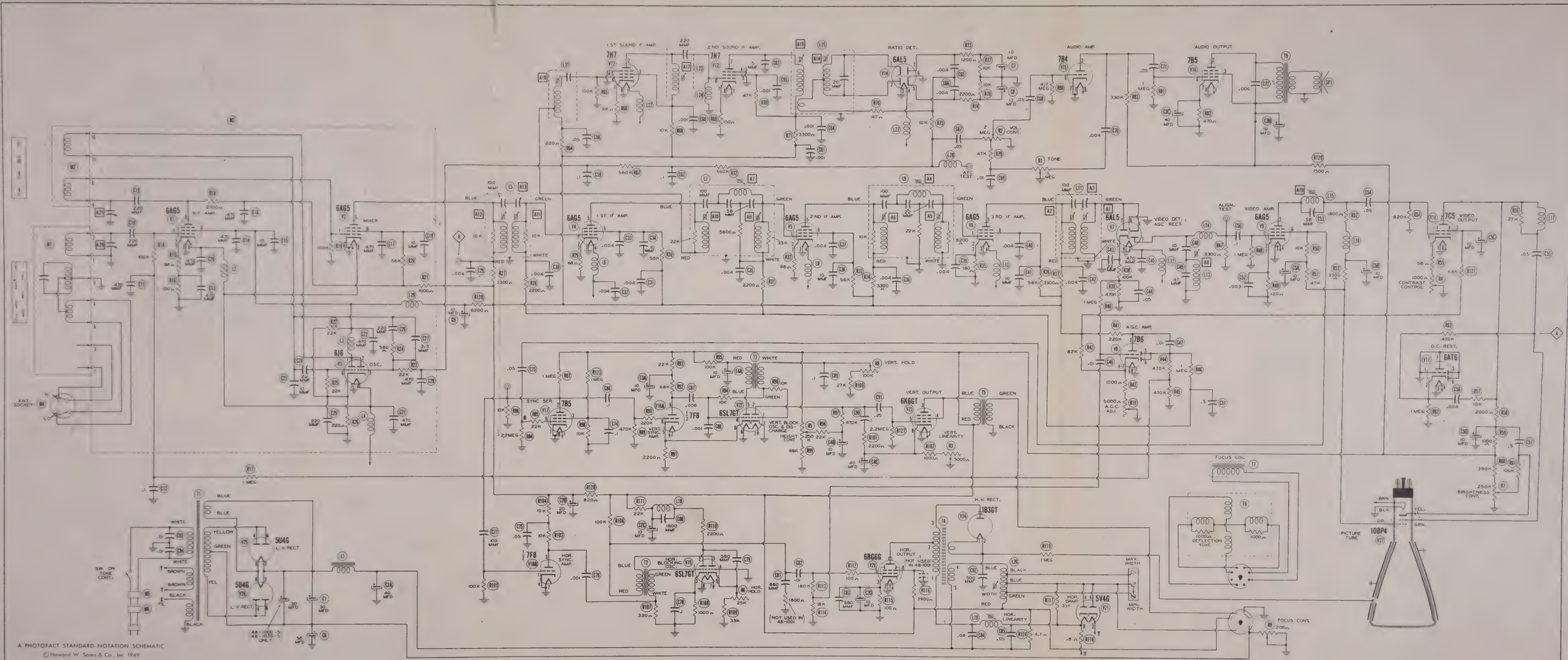
DATE 1/49-#491-17 SET #53-FOLDER #17

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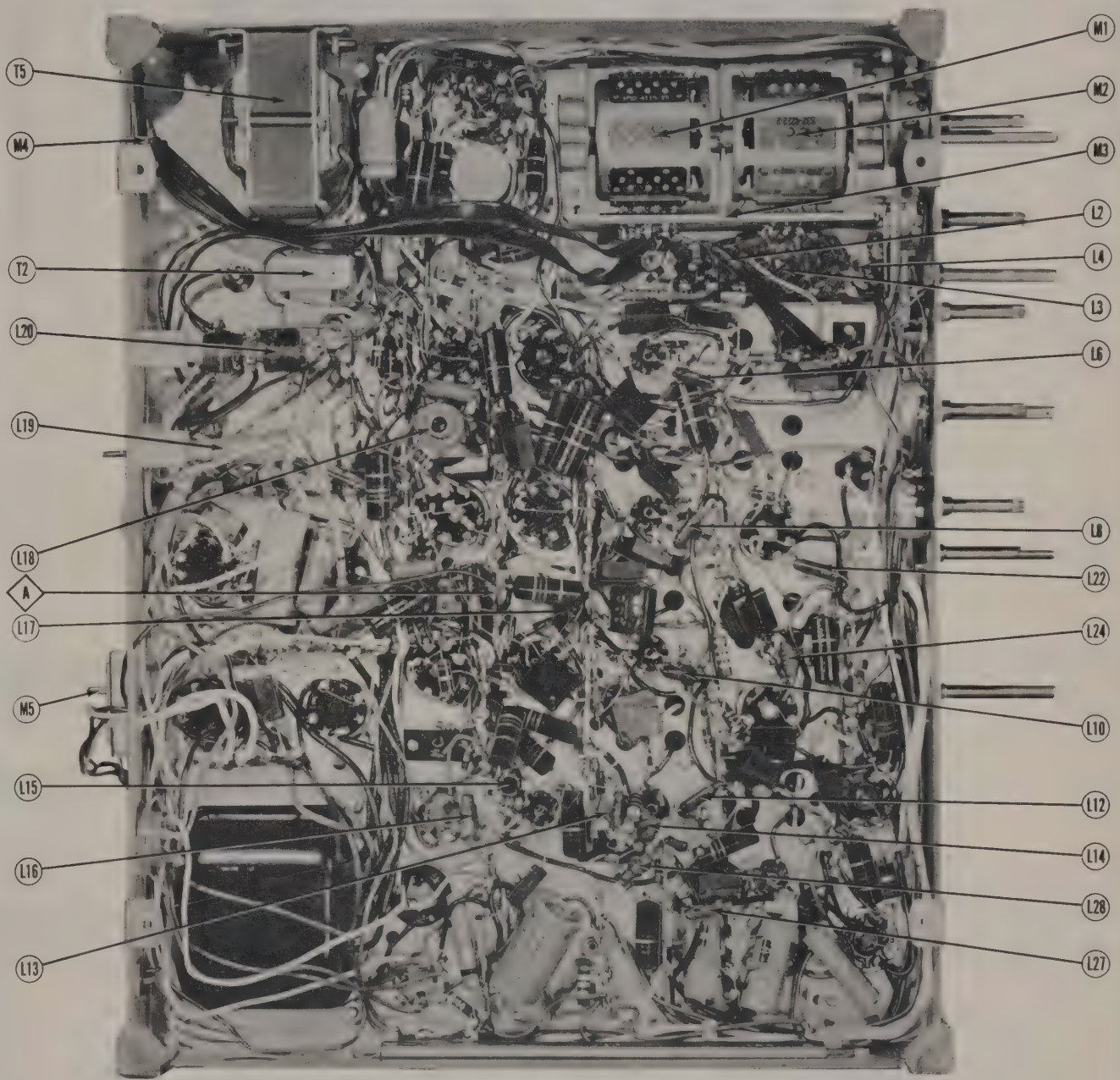
PHILCO MODELS 48-1000, 48-1001, 48-1050

CHASSIS–TOP VIEW




CHASSIS BOTTOM VIEW-TRANS INDUCTOR AND ALIGNMENT

# PHILCO MODELS 48-1000, 48-1001, 48-1050

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | NOTES |
|---|---|---|---|---|---|
| V1 | RF Amp. | 6AG5 | 6AG5 | 7BD | |
| V2 | Mixer | 6AG5 | 6AG5 | 7BD | |
| V3 | Oscillator | 6J6 | 6J6 | 7B4 | |
| V4 | 1st V. IF Amp. | 6AG5 | 6AG5 | 7BD | |
| V5 | 2nd V. IF Amp. | 6AG5 | 6AG5 | 7BD | |
| V6 | 3rd V. IF Amp. | 6AG5 | 6AG5 | 7BD | |
| V7 | Video Det. AGC Rectifier | 6AL5 | 6AL5 | 6BT | |
| V8 | AGC Amp. | 7B6 | 7B6 | 8W | |
| V9 | Video Amp. | 6AG5 | 6AG5 | 7BD | |
| V10 | Video Output | 7C5 | 7C5 | 6AA | |
| V11 | DC Restorer | 6AT6 | 6AT6 | 7BT | |
| V12 | 1st Audio IF Amp. | 7H7 | 7H7 | 8V | |
| V13 | 2nd " " " | 7H7 | 7H7 | 8V | |
| V14 | Ratio Det. | 6AL5 | 6AL5 | 6BT | |
| V15 | Audio Amp. | 7B4 | 7B4 | 5AC | |
| V16 | Audio Output | 7B5 | 7B5 | 6AE | |
| V17 | Sync. Sep. | 7B5 | 7B5 | 6AE | |
| V18 | Sync. Amp. | 7F8 | 7F8 | 8BW | |
| V19 | Horizontal Osc. | 6SL7GT | 6SL7GT | 8BD | |
| V20 | Hor. Output | 6BG6G | 6BG6G | 5BT | |
| V21 | Hor. Damping | 5V4G | 5V4G | 5L | |
| V22 | Vert. Osc. & Discharge | 6SL7GT | 6SL7GT | 8BD | |
| V23 | Vert. Output | 6K6GT | 6K6GT | 7B | |
| V24 | H.V. Rect. | 1B3GT | 1B3GT | 3C | |
| V25 | L.V. Rect. | 5U4G | 5U4G | 5T | |
| V26 | L.V. Rect. | 5U4G | 5U4G | 5T | |
| V27 | Picture Tube | 10BP4 | 10BP4 | | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: AEROVOX PART No. | REPLACEMENT DATA: CORNELL-DUBILIER PART No. | REPLACEMENT DATA: SOLAR PART No. | REPLACEMENT DATA: SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1 | 30 | 475 | 30-2568-19 | | UP8A292 | | D13297 | Filter |
| C2A | 40 | 475 | 30-2570-8 | | UP9D8263 | | D13298 | ▲ Filter |
| B | 20 | 475 | | | | | | ▲ " |
| C | 10 | 475 | | | | | | ■ RF Bypass |
| D | 10 | 25 | | | | | | ● Hor. Out. Cath. |
| C3A | 10 | 450 | 30-2570-16 | AF22J | UP5C879-1 | | D13312 | ■ Vert. Sync. Amp. Plate |
| B | 10 | 450 | | PRS50-50 | | | | ▲ Audio Out. Decoup. |
| C | 40 | 50 | | | | | | Audio Out. Cath. |
| C4A | 10 | 450 | 30-2570-16 | AF22J | UP5C879-1 | | D13312 | ■ Vert. Sweep Decoup. |
| B | 10 | 450 | | PRS50-50 | | | | ▲ " " |
| C | 40 | 450 | | | | | | Vert. Out. Cath. |
| C5A | 10 | 475 | 30-2570-10 | | UP7D825-1 | | D13299 | ▲ V. Amp. Screen Decoup. |
| B | 10 | 475 | | | | | | ■ V. Amp. Plate Decoup. |
| C | 10 | 475 | | | | | | ▲ V. Out. Screen Byp. |
| D | 10 | 475 | | | | | | V. Out. Plate Decoup. |
| C6 | 50 | 50 | 30-2417-2 | PRS50-50 | BR505 | M-50-50 | TA-550 | Bias Filter |
| C7 | 10 | 50 | 30-2417-3 | PRS50-10 | BR105 | M-10-50 | TA-510 | Stabilizing Cap. |
| C8 | 10 | 50 | 30-2417-3 | PRS50-10 | BR105 | M-10-50 | TA-510 | " " |
| C9 | 10 | 450 | 30-2417-6 | PR8450-10 | BR1045 | M-10-450 | UT-12 | " " |
| C10 | 220 | | 62122001001 | 1468-00025 | SW5T25 | MO.5-325 | 1FM-325 | RF Bypass |
| C11 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | RF Coupling -Cer. |
| C12 | .1 | 200 | 61-0113 | 484-.1 | DT4P1 | ST-2-1 | TM-1 | AGC Filter " |
| C13 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | " " |
| C14 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | RF Cath. " |
| C15 | 10 | | 62010009001 | | | | | RF Screen Bypass " |
| C16 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | " " " |
| C17 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | RF Decoup. " |
| C18 | 10 | | 62010009001 | | | | | Mixer Screen Byp. " |
| C19 | 220 | | 62122001001 | 1468-00025 | SW5T25 | MO.5-325 | 1FM-325 | RF Coupling " |
| C20 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | RF Fil. Byp. " |
| C21 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | Osc. Fil. Byp. " |
| C22 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | Osc. Plate Decoup. " |
| C23 | 10 | | 62010009001 | | | | | Osc. Grid Filter " |
| C24 | 22 | | 62022009001 | | | MO.5-25 | 1FM-425 | Osc. Coupling " |
| C25 | 220 | | 62122001001 | 1468-00025 | SW5T25 | MO.5-325 | 1FM-325 | Osc. Cath. Byp. " |
| C26 | 220 | | 62122001001 | 1468-00025 | SW5T25 | MO.5-325 | 1FM-325 | Phase Shifter " |
| C27 | 3.3 | | 30-1221 | | | | | Freq. Comp. " |
| C28 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | AFC Filter " |
| C29 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | Mixer Plate Decoup. |
| C30 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | AGC Filter |
| C31 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | RF Bypass |
| C32 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | 1st V. IF Fil. Byp. " |
| C33 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | 1st V. IF Screen Byp. " |
| C34 | 10 | | 62010009001 | | | | | " " " " |
| C35 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | AFC Filter |
| C36 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | 2nd V. IF Plate Decoup. |
| C37 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | 2nd V. IF Screen Byp. " |
| C38 | 10 | | 62010009001 | | | | | " " " " " |
| C39 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | 3rd V. IF Cath. Byp. |
| C40 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | 3rd V. IF Screen Byp. |
| C41 | 10 | | 62010009001 | | | | | 3rd V. IF Plate Decoup. |
| C42 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | 3rd V. IF Plate Decoup. |
| C43 | 22 | | 62022009001 | | | MO.5-25 | | AGC Filter -Cer. |
| C44 | .05 | 200 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | " " " |
| C45 | 470 | | 62147001001 | 1468-0005 | SW5T5 | MO.5-35 | 1FM-35 | Fil. Bypass " |
| C46 | .01 | 400 | 61-0120 | 484-01 | DT481 | ST-4-01 | TM-11 | Sweep Coupling |
| C47 | .01 | 400 | 61-0120 | 484-01 | DT481 | ST-4-01 | TM-11 | AGC Coupling |
| C48 | 10 | | 62010009001 | | | | | IF Coupling " |
| C49 | 47 | | | | | | | Fixed Trimmer " |
| C50 | .1 | 200 | 61-0113 | 484-.1 | DT4P1 | ST-2-1 | TM-1 | Video Coupling |
| C51 | .5 | 200 | 61-0133 | 484-.5 | DT4P5 | ST-2-5 | TC-5 | AGC Filter |
| C52 | 3000 | 500 | 61-0106 | 1467-003 | 1W5D3 | | 1FM-23 | Video Amp. Cath. Byp. |
| C53 | 56 | | 62056409001 | | | | | Fixed Trimmer -Cer. |
| C54 | .05 | 400 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | Video Coupling " |
| C55 | .05 | 400 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | " " |
| C56 | 4000 | 500 | 61-0179 | 1467-004 | 1D5D4 | | 1FM-24 | DC Res. Coupling |
| C57 | .5 | 400 | 45-3500-4 | 484-.5 | DT4P5 | ST-4-.5 | TC-5 | Pic. Tube Cath.Coup. |
| C58 | .05 | 400 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | 1st V. IF Plate Decoup. |
| C59 | .1 | 200 | 61-0113 | 484-.1 | DT4P1 | ST-2-1 | TM-1 | AFC Filter |
| C60 | .001 | 600 | 45-3500-5 | 684-001 | DT6D1 | ST-6-001 | TM-21 | 1st IF Decoup. |
| C61 | .001 | 600 | 45-3500-5 | 684-001 | DT6D1 | ST-6-001 | TM-21 | RF Bypass |
| C62 | .1 | 200 | 61-0113 | 484-.1 | DT4P1 | ST-2-1 | TM-1 | AFC Filter |
| C63 | 5 | | 30-1224-5 | | | | | Fixed Trimmer• |
| C64 | .001 | 600 | 45-3500-5 | 684-001 | DT6D1 | ST-6-001 | TM-21 | 2nd IF Decoup. |
| C65 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | Diode Load Cap. |
| C66 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | " " |
| C67 | .05 | 200 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | Audio Coupling |
| C68 | .05 | 200 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | " " |
| C69 | .01 | 400 | 61-0120 | 484-01 | DT481 | ST-4-01 | TM-11 | Tone Compensation |
| C70 | 4000 | 500 | 45-3502 | 1467-004 | 1D5D4 | | 1FM-24 | " " |
| C71 | .05 | 200 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | Audio Coupling |
| C72 | .006 | 1000 | 61-0105 | 1084-006 | | | | Output Plate Bypass |
| C73 | .05 | 400 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | Sync. Coupling |
| C74 | .1 | 200 | 61-0113 | 484-.1 | DT4P1 | ST-2-1 | TM-1 | Sync. Screen Byp. |
| C75 | .05 | 400 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | Hor. Sync. Plate Decoup. |
| C76 | 1000 | 500 | 6020105401 | 1468-001 | 5W5T1 | MW.5-21 | 1FM-21 | Hor. Sync. Coupling |
| C77 | 100 | 500 | 6010105407 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Sync. Coupling |
| C78 | .1 | 200 | 61-0113 | 484-.1 | DT4P1 | ST-4-1 | TM-1 | Hor. Osc. Cath. Byp. |
| C79 | 560 | 500 | 6010515307 | | | | | Cath. Coupling |
| C80 | 1800 | | | | | | | Fixed Trimmer |
| C81 | 680 | 500 | 6010685401 | | | | | Hor. Discharge |
| C82 | .01 | 400 | 61-0120 | 484-01 | DT481 | ST-4-01 | TM-11 | Hor. Coupling |
| C83 | 680 | | 6010685401 | | | | | Hor. Out. Cath. Byp. |
| C84 | .08 | 400 | 45-3501 | | | | | Damping Filter |
| C85 | .05 | 400 | 61-0122 | 484-05 | DT485 | ST-4-05 | TM-15 | " " |
| C86 | .1 | 200 | 61-0113 | 484-.1 | DT4P1 | ST-2-1 | TM-1 | Vert. Coupling |
| C87 | 6000 | 500 | 45-3500-7 | 1467-006 | 1D5D6 | | | " " |
| C88 | 1000 | 500 | 45-3500-5 | 1468-001 | 5W5T1 | MW.5-21 | 1FM-21 | Integrating Network |
| C89 | .1 | 200 | 61-0113 | 484-.1 | DT4P1 | ST-2-1 | TM-1 | Vert. Osc. Grid |
| C90 | .1 | 400 | 61-0113 | 484-.1 | DT4P1 | ST-4-1 | TM-1 | Vert. Discharge |
| C91 | .1 | 400 | 61-0113 | 484-.1 | DT4P1 | ST-4-1 | TM-1 | Vert. Coupling# |
| C92 | 500 | 10000 | 30-1229 | | | | | H.V. Filter T.O. |
| C93 | .01 | 500 | 30-1226-1 | 684-01 | DT681 | ST-6-01 | TM-11 | Line Filter |
| C94 | .01 | 500 | 30-1226-1 | 684-01 | DT681 | ST-6-01 | TM-11 | " " |
| C95 | .001 | 600 | 45-3500-5 | 684-001 | DT6D1 | ST-6-001 | TM-21 | 2nd IF Screen Byp. |

•Not used in all models.
#Code 121 uses .25 MFD in this application.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: CLAROSTAT PART No. | REPLACEMENT DATA: IRC PART No. | NOTES |
|---|---|---|---|---|---|---|
| R1 | 5 Meg. | ½ | 33-5538-9 | | | Tone Control & On-Off Switch |
| R2A | 2 Meg. | ½ | 33-5535-9 | T-116 | D18-139X | Volume Control-Tapped @ 1 Meg. |
| B | Shaft | | | Not Req. | A | Attach to R2A per instructions |
| R3 | 5000Ω | 2 | 33-5546-3 | 43-5000 | W-5000 | Vertical Linearity Control |
| R4 | 1000Ω | 2 | 33-5456-6 | 43-1000 | W-1000 | Contrast Control |
| R5A | 250KΩ | ½ | 33-5539-13 | M-55-S | D11-130 | Height Control |
| B | Shaft | | | Not Req. | A | Attach to R5A per instructions |
| R6A | 25KΩ | ½ | 33-5539-28 | M-40-S | D11-120 | Horizontal Hold Control |
| B | Shaft | | | Not Req. | A | Attach to R6A per instructions |
| R7A | 250KΩ | ½ | 33-5539-17 | M-55-S | D11-130 | Brightness Control |
| B | Shaft | | | Not Req. | A | Attach to R7A per instructions |
| R8A | 100KΩ | ½ | 33-5539-15 | M-49-S | D11-128 | Vertical Hold Control |
| B | Shaft | | | Not Req. | A | Attach to R8A per instructions |
| R9 | 200Ω | 4 | 33-5547-2 | | | Focus Control |
| R10A | 5000Ω | ½ | 33-5539-16 | M-19-S | D11-114 | AGC Control |
| B | Shaft | | | Not Req. | A | Attach to R10A per instructions |
| R11 | 50Ω | | 33-5546-4 | | | Beam Bender-See Note 1 |
| R12 | 10KΩ | | 33-5546-8 | | | Horizontal Linearity #2-See Note 2 |
| R13 | 10KΩ | | 33-5546-8 | | | Horizontal Linearity #3-See Note 2 |

Note 1-Not used in all models. When used, beam bender control is placed in parallel with beam bender.
Note 2-Not used in models using 33KΩ damping resistor (R117).

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES (All Resistors ±10% Tolerance Unless Otherwise Stated) | |
|---|---|---|---|---|---|---|
| R14 | 100KΩ | ½ | 66-4108540 | BTS-100K | Br.-Blk.-Yl. | RF Amp. Grid ±20% |
| R15 | 68Ω | ½ | 66-0688340 | | Blue-Gray-Blk. | RF Amp. Cathode |
| R16 | 100Ω | ½ | 66-1108340 | | Br.-Blk.-Br. | RF Amp. Cathode |
| R17 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. | AGC Network |
| R18 | 2700Ω | ½ | 66-2278340 | BTS-2700 | Red-Vi.-Red | RF Amp. Plate |
| R19 | 100KΩ | ½ | 66-4108540 | BTS-100K | Br.-Blk.-Yl. | Mixer Grid ±20% |
| R20 | 56KΩ | ½ | 66-3568340 | BTS-56K | Grn.-Blue-Or. | Mixer Screen |
| R21 | 1000Ω | ½ | 66-2108540 | BTS-1000 | Br.-Blk.-Red | Decoupling ±20% |
| R22 | 22KΩ | 1 | 66-3224340 | BTA-22K | Red-Red-Or. | Voltage Divider |
| R23 | 22KΩ | ½ | 66-3228540 | BTS-22K | Red-Red-Or. | AFC Network ±20% |
| R24 | 560Ω | ½ | 66-1568340 | BTS-560Ω | Grn.-Blue-Br. | Osc. Control Tube Grid |
| R25 | 220Ω | ½ | 66-3228540 | BTS-22K | Red-Red-Or. | Osc. Grid ±20% |
| R26 | 220Ω | ½ | 66-1228340 | | Red-Red-Br. | Osc. Cathode |
| R27 | 3300Ω | ½ | 66-2333340 | BTS-3300 | Or.-Or.-Red | Mixer Plate Decoupling |
| R28 | 2200Ω | ½ | 66-2223340 | BTS-2200 | Red-Red-Red | AGC Network ±20% |
| R29 | 68Ω | ½ | 66-0683340 | | Blue-Gray-Blk. | 1st Video IF Amp. Cathode |
| R30 | 56KΩ | ½ | 66-3563340 | BTS-56K | Grn.-Blue-Or. | 1st Video IF Amp. Screen |
| R31 | 2200Ω | ½ | 66-2223340 | BTS-2200 | Red-Red-Red | AGC Network ±20% |
| R32 | 68Ω | ½ | 66-0683340 | | Blue-Gray-Blk. | 2nd Video IF Amp. Cath. |
| R33 | 56KΩ | ½ | 66-3563340 | BTS-56K | Grn.-Blue-Or. | 2nd Video IF Amp. Screen |
| R34 | 3300Ω | ½ | 66-2333340 | BTS-3300 | Or.-Or.-Red | 2nd Video IF Amp. Decoup. ±20% |
| R35 | 180Ω | ½ | 66-1183340 | | Br.-Gray-Br. | 3rd Video IF Amp. Cathode |
| R36 | 56KΩ | ½ | 66-3563340 | BTS-56K | Grn.-Blue-Or. | 3rd Video IF Amp. Screen |
| R37 | 3300Ω | ½ | 66-2333340 | BTS-3300 | Or.-Or.-Red | 3rd Video IF Amp. Decoupling ±20% |
| R38 | 100KΩ | ½ | 66-4103340 | BTS-100K | Br.-Blk.-Yl. | AGC Diode Load ±20% |
| R39 | 470KΩ | ½ | 66-4473340 | BTS-470K | Yl.-Vi.-Yl. | " " " ±20% |
| R40 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. | AGC Amp. Grid ±20% |
| R41 | 220KΩ | ½ | 66-4223340 | BTS-220K | Red-Red-Yl. | AGC Amp. Plate ±20% |
| R42 | 82KΩ | 2 | 66-3824340 | BT-2-82K | Gray-Red-Or. | Voltage Divider |
| R43 | 1000Ω | ½ | 66-2103340 | BTS-1000 | Br.-Blk.-Red | AGC Amp. Cathode ±20% |
| R44 | 470KΩ | ½ | 66-4473340 | BTS-470K | Yl.-Vi.-Yl. | AGC Network ±20% |
| R45 | 470KΩ | ½ | 66-4473340 | BTS-470K | Yl.-Vi.-Yl. | " " ±20% |
| R46 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. | " " ±20% |
| R47 | 3300Ω | ½ | 66-2333340 | BTS-3300 | Or.-Or.-Red | Diode Load |
| R48 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. | Video Amp. Grid ±20% |
| R49 | 120Ω | ½ | 66-1123340 | | Br.-Red-Br. | Video Amp. Cathode |
| R50 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. | Video Amp. Screen |
| R51 | 47KΩ | ½ | 66-3473340 | BTS-47K | Yl.-Vi.-Or. | Video Amp. Screen Decoup. |
| R52 | 1800Ω | ½ | 66-2183340 | BTS-1800 | Br.-Gray-Red | Video Amp. Plate ±5% |
| R53 | 3300Ω | ½ | 66-2333340 | BTS-3300 | Or.-Or.-Red | Video Amp. Plate ±20% |
| R54 | 820KΩ | ½ | 66-4823340 | BTS-820K | Gray-Red-Yl. | Video Output Grid |
| R55 | 68Ω | ½ | 66-0683340 | | Blue-Gray-Blk. | Video Output Cathode |
| R56 | 27KΩ | ½ | 66-3273340 | BTS-27K | Red-Vi.-Or. | Video Output Plate |
| R57 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. | Video Isolation ±20% |
| R58 | 2000Ω | 5 | 33-1335-74 | AB-2000 | | Video Amp. Plate |
| R59 | 1000Ω | 2 | 66-2105340 | BT-2-1000 | Br.-Blk.-Red | Video Amp. Plate |
| R60 | 390KΩ | 1 | 66-4393340 | BTA-390K | Or.-Wh.-Yl. | Voltage Divider |
| R61 | 100KΩ | ½ | 66-4103340 | BTS-100K | Br.-Blk.-Yl. | Picture Tube Cathode ±20% |
| R62 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. | Diode Load ±20% |
| R63 | 470KΩ | ½ | 66-4473340 | BTS-470K | Yl.-Vi.-Yl. | Picture Tube Grid ±20% |
| R64 | 220Ω | ½ | 66-1223340 | | Red-Red-Br. | Decoupling |
| R65 | 100KΩ | ½ | 66-4108540 | BTS-100K | Br.-Blk.-Yl. | 1st Sound IF Grid ±20% |
| R66 | 68Ω | ½ | 66-0688340 | | Blue-Gray-Blk. | 1st Sound IF Cathode |
| R67 | 560KΩ | ½ | 66-4563340 | BTS-560K | Grn.-Blue-Yl. | AFC Network |
| R68 | 10KΩ | 2 | 66-3105340 | BT-2-10K | Br.-Blk.-Or. | Voltage Dropping-See Note 1 |
| R69 | 150Ω | ½ | 66-1153340 | | Br.-Grn.-Br. | 2nd Sound IF Amp. Cathode |
| R70 | 47KΩ | 1 | 66-3474340 | BTA-47K | Yl.-Vi.-Or. | 2nd Sound IF Amp. Screen |
| R71 | 3300Ω | ½ | 66-2333340 | BTS-3300 | Or.-Or.-Red | 2nd Sound IF Amp. Decoupling |
| R72 | 560KΩ | ½ | 66-4563340 | BTS-560K | Grn.-Blue-Yl. | AFC Network |
| R73 | 1200Ω | ½ | 66-2123340 | BTS-1200 | Br.-Red-Red | Balancing-See Notes2 & 6 ±5% |
| R74 | 2200Ω | ½ | 66-2223340 | BTS-2200 | Red-Red-Red | " See Note 6 ±5% |
| R75 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. | De-emphasis-See Note 6 ±20% |
| R76 | 47Ω | ½ | 66-0473340 | | Yl.-Vi.-Blk. | Balancing |
| R77 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. | Diode Load-See Note 3 |
| R78 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. | " " " " " |
| R79 | 47KΩ | ½ | 66-3473340 | BTS-47K | Yl.-Vi.-Or. | Tone Compensation ±20% |
| R80 | 4.7 Meg. | ½ | 66-5473340 | BTS-4.7 Meg. | Yl.-Vi.-Grn. | AF Amp. Grid ±20% |
| R81 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. | Audio Output Grid ±20% |
| R82 | 470Ω | 2 | 66-1475340 | BT-2-470 | Yl.-Vi.-Br. | Audio Output Cathode |
| R83 | 330KΩ | ½ | 66-4333340 | BTS-330K | Or.-Or.-Yl. | Audio Amp. Plate ±20% |
| R84 | 2.2 Meg. | ½ | 66-5223340 | BTS-2.2 Meg. | Red-Red-Grn. | Sync. Sep. Grid ±20% |
| R85 | 22KΩ | ½ | 66-3223340 | BTS-22K | Red-Red-Or. | Grid Current Limiting ±20% |
| R86 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. | Voltage Divider |
| R87 | 1 Meg. | 1 | 66-5104340 | BTA-1 Meg. | Br.-Blk.-Grn. | Sync. Sep. Plate Load |
| R88 | 10KΩ | 1 | 66-3104340 | BTA-10K | Br.-Blk.-Or. | Voltage Divider |
| R89 | 470KΩ | ½ | 66-4473340 | BTS-470K | Yl.-Vi.-Yl. | Vert. Sync. Amp. Grid ±20% |
| R90 | 220KΩ | ½ | 66-4223340 | BTS-220K | Red-Red-Yl. | Grid Current Limiting ±20% |
| R91 | 2200Ω | ½ | 66-2223340 | BTS-2200 | Red-Red-Red | Vert. Sync. Amp. Cathode ±5% |
| R92 | 68KΩ | 1 | 66-3684340 | BTA-68K | Blue-Gray-Or. | Vert. Sync. Amp. Plate-See Note 4 |
| R93 | 22KΩ | ½ | 66-3223340 | BTS-22K | Red-Red-Or. | Vert. Sync. Amp. Plate ±20% |
| R94 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. | Vert. Block Osc. Grid ±20% |
| R95 | 100KΩ | ½ | 66-4103340 | BTS-100K | Br.-Blk.-Yl. | Vert. Block. Osc. Plate Decoup. ±20% |
| R96 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. | Vert. Block.Osc. Grid ±20% |
| R97 | 470KΩ | 1 | 66-4474340 | BTA-470K | Yl.-Vi.-Yl. | Vert. Block.Osc. Plate ±20% |
| R98 | 22KΩ | ½ | 66-3223340 | BTS-22K | Red-Red-Or. | Vert. Block. Osc. Plate Decoup. ±20% |
| R99 | 68KΩ | ½ | 66-3683340 | BTS-68K | Blue-Gray-Or. | Voltage Divider |
| R100 | 27KΩ | ½ | 66-3273340 | BTS-27K | Red-Vi.-Or. | " " |
| R101 | 2200Ω | ½ | 66-2223340 | BTS-2200 | Red-Red-Red | Peaking ±20% |
| R102 | 1000Ω | 1 | 66-2104340 | BTA-1000 | Br.-Blk.-Red | Vert. Output Cathode |
| R103 | 10KΩ | 1 | 66-3104340 | BTA-10K | Br.-Blk.-Or. | Horiz. Sync. Amp. Plate ±20% |
| R104 | 10KΩ | 1 | 66-3104340 | BTA-10K | Br.-Blk.-Or. | " " " " ±20% |
| R105 | 100KΩ | ½ | 66-4103340 | BTS-100K | Br.-Blk.-Yl. | Hor. Sync. Amp. Grid ±20% |
| R106 | 100KΩ | 1 | 66-4104340 | BTA-100K | Br.-Blk.-Yl. | Hor. Block. Osc. Plate-Note 5 ±5% |
| R107 | 330Ω | ½ | 66-1333340 | | Or.-Or.-Br. | Hor. Block. Osc. Grid +5% |
| R108 | 1000Ω | ½ | 66-2103340 | BTS-1000 | Br.-Blk.-Red | Hor. Block. Osc. Cathode |
| R109 | 33KΩ | ½ | 66-3333340 | BTS-33K | Or.-Or.-Or. | Hor. Block. Osc. Cathode ±5% |
| R110 | 2200Ω | ½ | 66-2223340 | BTS-2200 | Red-Red-Red | Hor. Block. Osc. Plate ±5% |
| R111 | 22KΩ | ½ | 66-3223340 | BTS-22K | Red-Red-Or. | " " " " -Note 6 ±20% |
| R112 | 100Ω | ½ | 66-1103340 | | Br.-Blk.-Br. | Grid Current Limiting ±20% |
| R113 | 180KΩ | ½ | 66-4183340 | BTS-180K | Br.-Gray-Yl. | Hor. Output Grid |
| R114 | 18KΩ | ½ | 66-3183340 | BTS-18K | Br.-Gray-Or. | " " |
| R115 | 100Ω | 2 | 66-1105340 | | Br.-Blk.-Br. | Hor. Output Cathode |
| R116 | 3900Ω | 2 | 66-2395340 | BT-2-3900 | Or.-Wh.-Red | Hor. Output Cathode |
| R117 | 33KΩ | 2 | | BT-2-33K | Or.-Or.-Or. | Damping-See Note 7 |
| R118 | .8Ω | ½ | 33-1334-1 | | | Hor. Damping Filament |
| R119 | 1 Meg. | 1 | 66-5104340 | BTA-1 Meg. | Br.-Blk.-Grn. | High Voltage Filter ±20% |
| R120 | 8520Ω | | 33-3435-5 | | | Low Voltage Filter Network-Note 8 |
| R121 | 68KΩ | ½ | 66-3683340 | BTS-68K | Blue-Gray-Or. | Video Output Screen |
| R122 | 2.2 Meg. | ½ | 66-5223340 | BTS-2.2 Meg. | Red-Red-Grn. | Video Output Grid |
| R123 | 1 Meg. | ½ | 66-5104340 | BTS-1 Meg. | Br.-Blue-Grn. | Sync. Sep. Screen |
| R124 | 4.7Ω | 1 | 66-9473340 | | Yl.-Vi.-Gold | Hor. Centering |

Note 1-Some models use two 22KΩ resistors in parallel in this application.
Note 2-Some models use 3300Ω in this application.
Note 3-Some models use 27KΩ in this application.
Note 4-Some models use 82KΩ in this application.
Note 5-Some models use 150KΩ in this application.
Note 6-Not used in all models.
Note 7-Models using R12 & R13 linearity controls use either 3500Ω and 2000Ω resistors in series or 6200Ω in this application.
Note 8-Tapped at 1600Ω and 2320Ω.

PARTS LIST CONTINUED ON PAGE 10

# ALIGNMENT INSTRUCTIONS

## ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

### VIDEO IF ALIGNMENT

High voltage may be disabled during the alignment procedure by removing the horizontal oscillator (V19). All signal generator leads must be shielded. The unshielded termination of the lead must be as short as possible and the shield should be connected to the receiver chassis at the closest possible point to the hot lead. The signal generator lead should be terminated with a shunt resistor equal to the output impedance of the generator.

The speaker and deflection yoke must be connected at all times when the receiver is in operation. If the yoke is not used, both sweep generator tubes (V19 and V22) must be removed. If the speaker is not used, the audio output tube (V16) must be removed.

Thesignal generator output must be kept low enough at all times to prevent overload. Use insulated alignment screwdriver for adjustments.

The receiver should be allowed to warm up for at least 20 minutes before alignment is attempted.

When used with the sweep signal generator, the marker oscillator should be connected through a small capacitor, about 10 MMFD. When used alone, couple direct.

When connecting signal generator to mixer grid, the shield grounding will be critical. Try adding additional grounds until no change in pattern is noted.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | 5000MMF | Pin #1 (grid) of 6AG5 (V6). | 25MC 8MC sweep | 27.1MC (Unmodulated) | Any | High side to "align test" jack through 10K ohms. Low side to chassis | A1,A2 | Set A3 fully counterclockwise for narrow peak pattern. Adjust A1 and A2 for maximum amplitude with marker at peak of curve. See Fig. 1. |
| 2 | 5000MMF | " | " | 23.1MC (Unmodulated) | " | " | A3 | Adjust for pattern approx. Fig. 2. Slight readjustment of A1 & A2 may be necessary. |
| 3 | 5000MMF | Pin #1 (grid) of 6AG5 (V5). | Not used | 28.1MC (Modulated 400 ∿) | " | " | A4 | Adjust for minimum amplitude. Increase output of marker gen. for more accurate indication. |
| 4 | 5000MMF | " | 25MC 8MC sweep | 23.7MC & 26.6MC (Unmodulated) | " | " | A5,A6 | Adjust for pattern approximating Fig. 3. A5 should be adjusted at 26.6MC and A6 at 23.75MC. |
| 5 | 5000MMF | Pin #1 (grid) of 6AG5 (V4). | Not used | 22.1MC (Modulated)400∿ | " | " | A7,A8 | Adjust for minimum amplitude. |
| 6 | 5000MMF | " | 25MC 8MC sweep | See Fig. 4 | " | " | A9,A10 | Adjust for pattern approximating Fig. 4. |
| 7 | 5000MMF | Pin #1 (grid) of Mixer (V2) | " | See Fig. 5 | " | " | A11,A12 A13 | Adjust for pattern approximating Fig. 5. A13 controls band width. Slight readjustments of A5, A6, A9 and A10 may be made if necessary. |

### SOUND IF ALIGNMENT

A20 and A21 are factory preset to compensate for different wiring capacitances. Readjustment should never be necessary unless tubes or component parts in the tuner changed. If it does become necessary to adjust these trimmers they should be adjusted at the highest frequency channel normally used. Connect an oscilloscope to Point Ⓑ through a detector probe and isolating capacitor. With a sweep signal generator adjusted to sweep through the desired channel, adjust A20 and A21 for symmetrical response through the channel.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 8 | 5000MMF | Pin #6 (grid) of 7H7 (V13). | 22.1MC 2MC sweep | 22.1MC (Unmodulated) | Any | High side thru 10KΩ resistor to "AFC test" jack. Low side to chassis. | | Crossover should be at 22.1MC. Move marker to 21.8MC for lower peak and to 22.4MC for upper peak. Be sure pattern is such that frequencies below 22.1MC give negative output. If discriminator is properly aligned as shown in Fig. 6, Steps 9 and 10 may be omitted |
| 9 | 5000MMF | " | " | " | " | " | A14 | Adjust for corssover at 22.1MC. |
| 10 | 5000MMF | " | " | 21.8MC & 22.4MC | " | " | A15, A16 | Adjust for symmetrical peaks at 21.8MC and 22.4MC. If output does not go negative at frequencies below 22.1MC turn A16 clockwise until negative peak is at 21.8MC. A16 is not found in all models. |
| 11 | 5000MMF | Pin #6 (grid) of 7H7 (V12). | " | | " | " | A17 | Adjust for maximum amplitude with symmetrical peaks. |
| 12 | 5000MMF | Pin #1 (grid) of 6AG5 (V4). | " | | " | " | A18 | " |
| 13 | 5000MMF | Pin #1 (grid) of Mixer (V3). | " | 22.1MC | " | " | A17,A18 | If discriminator peaks are unequal, A17 and A18 may be readjusted slightly to equalize the peaks. |
| 14 | DIRECT | Pin #1 (grid) of 6AG5(V9). | | 4.5MC (Unmodulated) | " | High side to Point Ⓐ. Low side to chassis | A19 | Adjust for minimum.If wide band scope is not available, VTVM with AC probe may be used. |

## OSC. ADJUSTMENT

With the channel selector switch set to the desired channel, remove the knob and insert a screwdriver through the hole to reach the oscillator adjustment. Adjust for best sound, or preferably for zero voltage at the AFC test jack.

## AGC ADJUSTMENT

With a calibrated oscilloscope connected to the "align test" jack, and a signal being received, adjust the AGC control for a 2 volt peak-to-peak signal on the scope.

FIG.1

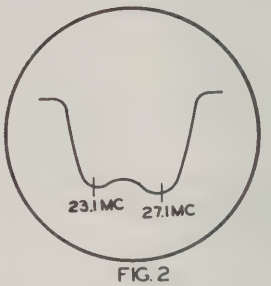


FIG.2

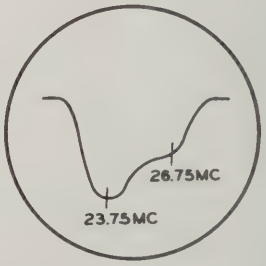


FIG.3

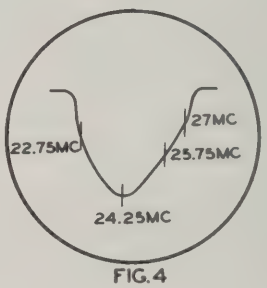


FIG.4

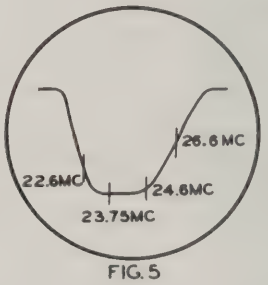


FIG.5

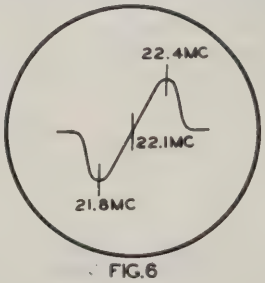


FIG.6

CHASSIS TOP VIEW-TUBE AND ALIGNMENT IDENTIFICATION

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | PHILCO PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. |
| T1 | 2.5 Amp @ 117V AC | 310 MA. @ 630V AC | 3.5 Amp @ 6.3V AC | 6 Amp. @ 5V AC | 32-8303 | | | |
| | | | | SEC. 4 2 Amp. @ 5V AC | | | | |
| T1B | | | | | 32-8344† | | | |

†Used in Models 48-1000-5, 48-1001-5, 48-1050-5.

## TRANSFORMER (SWEEP CIRCUITS)

| ITEM No. | RATING DC RESISTANCE PRI. | RATING DC RESISTANCE SEC. | REPLACEMENT DATA PHILCO PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T2 | 5.5Ω | 400Ω | 32-8307 | A-8110 | | A-3002 | Hor. Block. Osc. Trans. |
| T3 | 360Ω | 195Ω | 32-8304 | A-8111 | TV-24A88 | A-3000 | Vert. Block. Osc. Trans |
| T4 | 300Ω tapped @ 42Ω | SEC. 1 2.5Ω SEC. 2 0Ω | 32-8331 | | | | Hor. Output Trans. |
| T5 | 700Ω | 10Ω | 32-8306 | A-8115 | TV-24S86 | A-3035 | Vert. Output Trans. |
| T6A | 30Ω | | 32-9604 | | | | Vert. Deflection Yoke |
| B | 9Ω | | | | | | Hor. Deflection Yoke |
| T7 | 120Ω | | 76-2622-1 | | | | Focus Coil |
| T8 | | | 76-2623 | | | | Beam Bender-See Note |

NOTE-Some models use PM Beam Bender. When T8 is used it is placed in series with the focus coil.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | RATING IMPEDANCE PRI. | RATING IMPEDANCE SEC. | RATING DC RES. PRI. | RATING DC RES. SEC. | REPLACEMENT DATA PHILCO PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T9 | 7800Ω | 3.2Ω | 520Ω | .7Ω | 32-8244-1 | A-3878 | T22S47 | A-2931 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA PHILCO PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| SP1 | FIELD PM | VC IMP. 3.2Ω | 36-1613-2 | ST-109 | 6A21 | |
| SP2 | CONE DIA. 6" | VC DIA. 3/4" | | | | |

## FILTER CHOKE

| ITEM No. | RATINGS TOTAL DIRECT CURRENT | RATINGS D. C. RESISTANCE | RATINGS INDUCTANCE (0 CURRENT 1000 ∿) | REPLACEMENT DATA PHILCO PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| L1 | 310MA | 100Ω | 3.4 Henries | 32-8308 | | | C-3183 | |

## COILS (RF-IF)

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA PHILCO PART No. | MEISSNER PART No. | NOTES |
|---|---|---|---|---|---|---|
| L2 | Fil. Choke | 0Ω | | 32-4112-4 | | |
| L3 | Osc. Plate | 0Ω | | 32-4112-2 | | |
| L4 | Fil. Choke | 0Ω | | 32-4112-4 | | |
| L5 | 1st IF | .4Ω | .2Ω | 32-4093 | | |
| L6 | Fil. Choke | 0Ω | | 32-4112-3 | | |
| L7 | 2nd Video IF | .4Ω | .2Ω | 32-4213 | | Includes co-channel sound trap |
| L8 | Fil. Choke | 0Ω | | 32-4112-3 | | |
| L9 | 3rd Video IF | .4Ω | .2Ω | 32-4213-1 | | Includes adjacent channel sound trap |
| L10 | Fil. Choke | 0Ω | | 32-4112-3 | | |
| L11 | 4th Video IF | .4Ω | .2Ω | 32-4093-1 | | |
| L12 | Fil. Choke | 0Ω | | 32-4112-3 | | |
| L13 | Sound Trap | 0Ω | | 32-4218 | | |
| L14 | Video Peak. | 4.6Ω | | 32-4143 | | |
| L15 | 4.5MC Trap | 1Ω | | 32-4155 | | |
| L16 | Peaking | 2Ω | | 32-4143-1 | | |
| L17 | " | 3Ω | | 32-4143-2 | | |
| L18 | Hor. Stabilizing | 240Ω | | 32-4256 | | |
| L19 | Hor. Linearity | 18Ω | | 32-4211 | | |
| L20 | Width | 2.5Ω | 195Ω | 32-4163-2 | | |
| L21 | 2nd Sound IF | 0Ω | | 32-4100 | | |
| L22 | Fil. Choke | 0Ω | | 32-4112-3 | | |
| L23 | 3rd Sound IF | 0Ω | | 32-4099 | | |
| L24 | IF Grid | 2Ω | | 32-4143-1 | | |
| L25 | Det. Trans. | 0Ω | 0Ω | 32-4214 | | |
| L26 | Det. Balancing | 2Ω | | 32-4143-1 | | Not used in all models. |
| L27 | Fil. Choke | 0Ω | | 32-4112-3 | | |
| L28 | AFC Test Isolation | 2Ω | | 32-4143-1 | | |
| L29 | RF Choke | 0Ω | | | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | PHILCO PART No. | NOTES |
|---|---|---|---|
| M1 | Antenna and RF Coil Assembly | 32-4115 | Indicate channel desired by suffixing channel number i.e. 32-4115-3. |
| M2 | Osc. & Mixer Coil Assy. | 32-4122 | Indicate channel desired by suffixing channel number i.e. 32-4122-3. |
| M3 | Tuner Assembly | 76-3109 | |
| M4 | Antenna Receptacle | 27-6214-1 | |
| M5 | Interlock Plug-Male | 54-4426-2 | |
| M6 | " " -Female | 27-6217 | |
| M7 | P.M. Beam Bender | 76-3913 | |
| A20 | RF Amp. Grid Trimmer | 31-6493 | |
| A21 | Mixer Grid Trimmer | 31-6493 | |
| | Power Cord | L2183 | |
| | Oscillator Contact Panel | 76-2678 | |
| | Antenna Contact Panel | 76-2664 | |
| | Shaft and Drum | 76-3110 | |
| | Cabinet | 10672A | Model 48-1000 |
| | " | 10672B | Model 48-1000-5 |
| | " | 10694 | Models 48-1050 and 48-1050-5 |
| | " | 10703 | Model 48-1001 |
| | Knob | 54-4376 | |
| | Selector Knob & Spring | 76-2953FCP | |
| | Station Tab Kit | 40-6948 | |
| | Picture Tube Window | 54-7340 | Models 48-1000 and 48-1000-5 |
| | " " " | 54-7340-1 | Models 48-1050 and 48-1050-5 |
| | " " " | 54-7596 | Model 48-1001 |

CABINET-REAR VIEW

# VOLTAGE AND RESISTANCE MEASUREMENTS

## VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6AG5 | -.2VDC | 1VDC | 0V. | 6.4VAC | 260VDC | 135VDC | 1VDC | - | - |
| 2 | 6AG5 | -4.5VDC | 0V. | 6.4VAC | 0V. | 250VDC | 145VDC | 0V. | - | - |
| 3 | 6J6 | 115VDC | 115VDC | 0V. | 6.4VAC | -1.2VDC | 4VDC | 4.4VDC | - | - |
| 4 | 6AG5 | -.2VDC | .6VDC | 0V. | 6.4VAC | 245VDC | 115VDC | .6VDC | - | - |
| 5 | 6AG5 | -.2VDC | .6VDC | 0V. | 6.4VAC | 230VDC | 125VDC | .6VDC | - | - |
| 6 | 6AG5 | 0V. | 1.7VDC | 0V. | 6.4VAC | 230VDC | 130VDC | 1.7VDC | - | - |
| 7 | 6AL5 | 0V. | 0V. | 6.4VAC | 0V. | .5VDC | 0V. | -.2VDC | - | - |
| 8 | 7B6 | 0V. | 240VDC | .1VDC | 3.2VDC 17VDC | -.1VDC | -.1VDC | 3.2VDC 17VDC | 6.4VAC | - |
| 9 | 6AG5 | 0V. | 1.1VDC | 0V. | 6.4VAC | 215VDC | 130VDC | 1.1VDC | - | - |
| 10 | 7C5 | 0V. | 245VDC | 115VDC | 0V. | 0V. | 0V. | 2.4VDC | 6.4VAC | - |
| 11 | 6AT6 | 0V. | .8VDC | 0V. | 6.4VAC | 0V. | 0V. | 0V. | - | - |
| 12 | 7H7 | 6.4VAC | 115VDC | 115VDC | 0V. | 0V. | 0V. | 1VDC | 0V. | - |
| 13 | 7H7 | 6.4VAC | 225VDC | 125VDC | 0V. | 0V. | 0V. | 1.7VDC | 0V. | - |
| 14 | 6AL5 | 0V. | 0V. | 0V. | 6.4VAC | .3VDC | 0V. | -.3VDC | - | - |
| 15 | 7B4 | 0V. | 100VDC | 0V. | 0V. | 0V. | -.6VDC | 0V. | 6.4VAC | - |
| 16 | 7B5 | 6.4VAC | 270VDC | 280VDC | 0V. | 0V. | 0V. | 17.5VDC | 0V. | - |
| 17 | 7B5 | 6.4VAC | 2.5VDC | 3.4VDC | 0V. | 340VDC | -.6VDC | 0V. | 0V. | - |
| 18 | 7F8 | -.3VDC | 6.4VAC | 120VDC | 0V. | 4.5VDC | 175VDC | 0V. | 0V. | - |
| 19 | 6SL7GT | -.4VDC | 255VDC | 5.1VDC | 0V. | 185VDC | 60VDC 85VDC | 6.4VAC | 0V. | - |
| 20 | 6BG6G | 0V. | 0V. | 7.5VDC | 0V. | -14VDC | 0V. | 6.4VAC | 295VDC | ** |
| 21 | 5V4G | 0V. | 390VDC | 0V. | 335VDC | 0V. | 335VDC | 0V. | 390VDC | - |
| 22 | 6SL7GT | -22VDC | 30VDC 140VDC | 0V. | -22VDC | 315VDC | 4.5VDC | 6.4VAC | 0V. | - |
| 23 | 6K6GT | 0V. | 6.4VAC | 330VDC | 330VDC | 0V. | 0V. | 0V. | 27VDC 55VDC | - |
| 24 | 1B3GT | **DO NOT MEASURE. | | | | | | | | |
| 25 | 5U4G | 0V. | 360VDC | 0V. | 330VAC | 0V. | 330VAC | 0V. | 360VDC | - |
| 26 | 5U4G | 0V. | 360VDC | 0V. | 330VAC | 0V. | 330VAC | 0V. | 360VDC | - |
| 27 | 10BP4 | 0V. | .3VDC | Pin 10 250VDC | Pin 11 15VDC | Pin 12 6.4VAC | | | | |

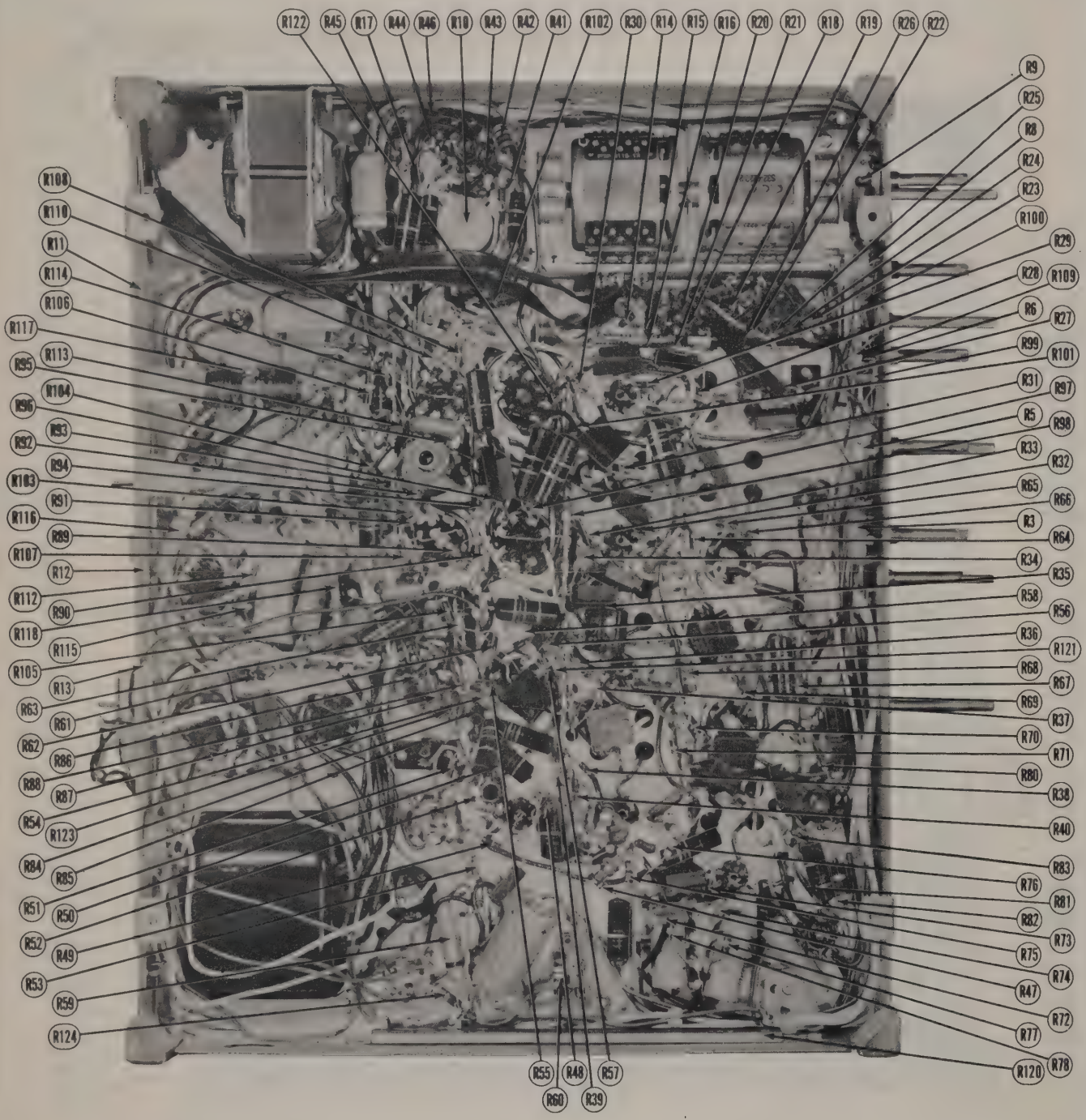
**DO NOT MEASURE.

## RESISTANCE READINGS

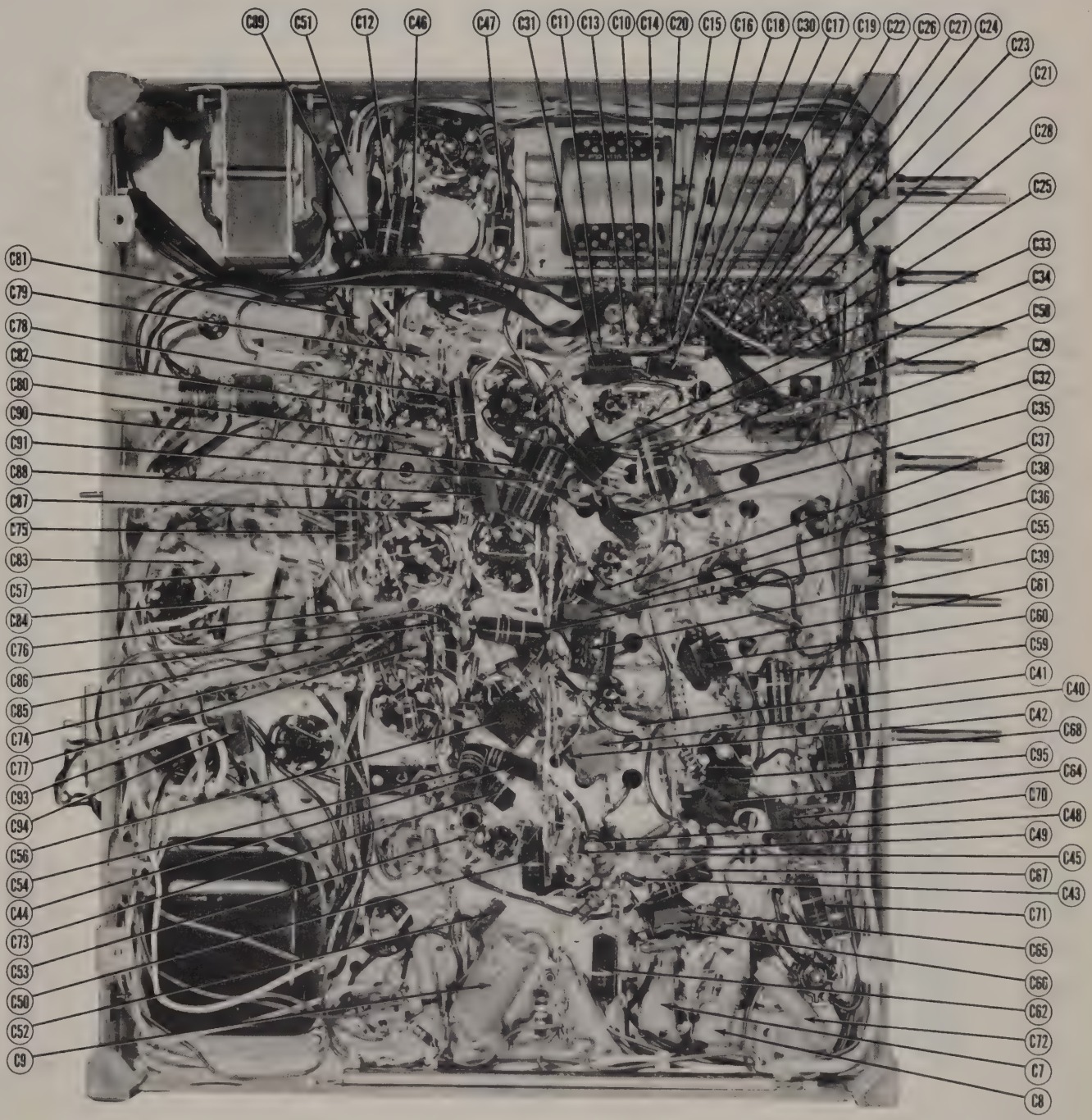
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6AG5 | 1.6 Meg. | 170Ω | 0Ω | .1Ω | 4600Ω | 6500Ω* | 170Ω | - | - |
| 2 | 6AG5 | 100KΩ | 0Ω | .1Ω | 0Ω | 4700Ω* | 65KΩ* | 0Ω | - | - |
| 3 | 6J6 | 6500Ω* | 6500Ω* | 0Ω | .1Ω | INF. | 22KΩ | 220Ω | - | - |
| 4 | 6AG5 | 2 Meg. | 68Ω | 0Ω | .1Ω | 1100Ω* | 62KΩ* | 68Ω | - | - |
| 5 | 6AG5 | 2 Meg. | 68Ω | 0Ω | .1Ω | 4600Ω* | 62KΩ* | 68Ω | - | - |
| 6 | 6AG5 | .2Ω | 1600Ω | 0Ω | .1Ω | 4600Ω* | 62KΩ* | 180Ω | - | - |
| 7 | 6AL5 | .2Ω | .2Ω | .1Ω | 0Ω | 570KΩ | INF. | 3300Ω | - | - |
| 8 | 7B6 | 0Ω | 220KΩ* | 1.5 Meg. | 1000Ω 6000Ω | 1 Meg. | 1 Meg. | 1000Ω 6000Ω | .1Ω | - |
| 9 | 6AG5 | 1 Meg. | 120Ω | 0Ω | .1Ω | 6500Ω* | 60KΩ* | 120Ω | - | - |
| 10 | 7C5 | 0Ω | 3000Ω* | 70KΩ* | INF. | INF. | 820KΩ | 68Ω * | .1Ω | - |
| 11 | 6AT6 | 0Ω | 1 Meg. | 0Ω | .1Ω | 0Ω | 0Ω | 0Ω | - | - |
| 12 | 7H7 | .1Ω | 11KΩ* | 11KΩ* | 0Ω | 0Ω | 100KΩ | 68Ω | 0Ω | - |
| 13 | 7H7 | .1Ω | 4000Ω* | 50KΩ* | 0Ω | 0Ω | 2Ω | 150Ω | 0Ω | - |
| 14 | 6AL5 | INF. | INF. | 0Ω | .1Ω | 10KΩ | INF. | 10KΩ | - | - |
| 15 | 7B4 | 0Ω | 330KΩ* | INF. | INF. | INF. | 4.7 Meg. | 0Ω | .1Ω | - |
| 16 | 7B5 | .1Ω | 2000Ω* | 1600Ω* | INF. | INF. | 1 Meg. | 470Ω | 0Ω | - |
| 17 | 7B5 | .1Ω | 10KΩ | 10KΩ | INF. | 90Ω* | 2.2 Meg. | 0Ω | 0Ω | - |
| 18 | 7F8 | 100KΩ | .1Ω | 20KΩ* | 0Ω | 2200Ω | 100KΩ* | 0Ω | 700KΩ | - |
| 19 | 6SL7GT | 330Ω | 25KΩ* | 1000Ω | 0Ω | 100KΩ* | 33KΩ 60KΩ | .1Ω | 0Ω | - |
| 20 | 6BG6G | INF. | 0Ω | 100Ω | INF. | 200KΩ | INF. | .1Ω | 3900Ω* | 33KΩ* |
| 21 | 5V4G | INF. | 33KΩ* | INF. | 90Ω* | INF. | 90Ω* | INF. | 33KΩ* | - |
| 22 | 6SL7GT | 40KΩ 1400KΩ | 480KΩ | 0Ω | 40KΩ 140KΩ | 100KΩ* | 2200Ω | .1Ω | 0Ω | - |
| 23 | 6K6GT | INF. | .1Ω | 700Ω* | 700Ω* | 2.2 Meg. | INF. | 0Ω | 1000Ω 6000Ω | - |
| 24 | 1B3GT | INF. | INF. | INF. | INF. | INF. | INF. | INF. | INF. | 36KΩ* |
| 25 | 5U4G | INF. | 18KΩ | INF. | 46Ω | INF. | 46Ω | INF. | 18KΩ | - |
| 26 | 5U4G | INF. | 18KΩ | INF. | 27Ω | INF. | 27Ω | INF. | 18KΩ | - |
| 27 | 10BP4 | 0Ω | 1.5 Meg. | Pin 10 900Ω* | Pin 11 100KΩ | Pin 12 .1Ω | | | | |

*MEASURED FROM PIN 8 OF V25.

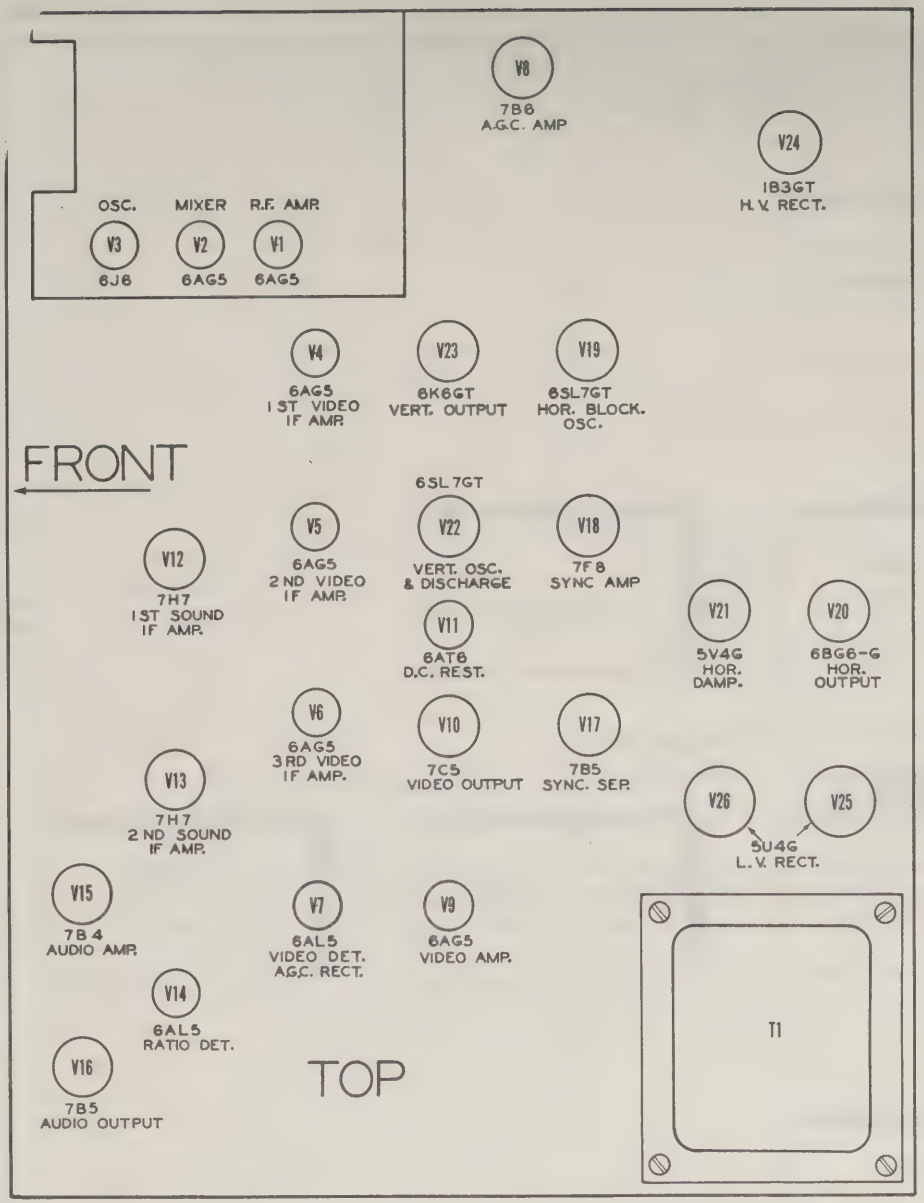
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at maximum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

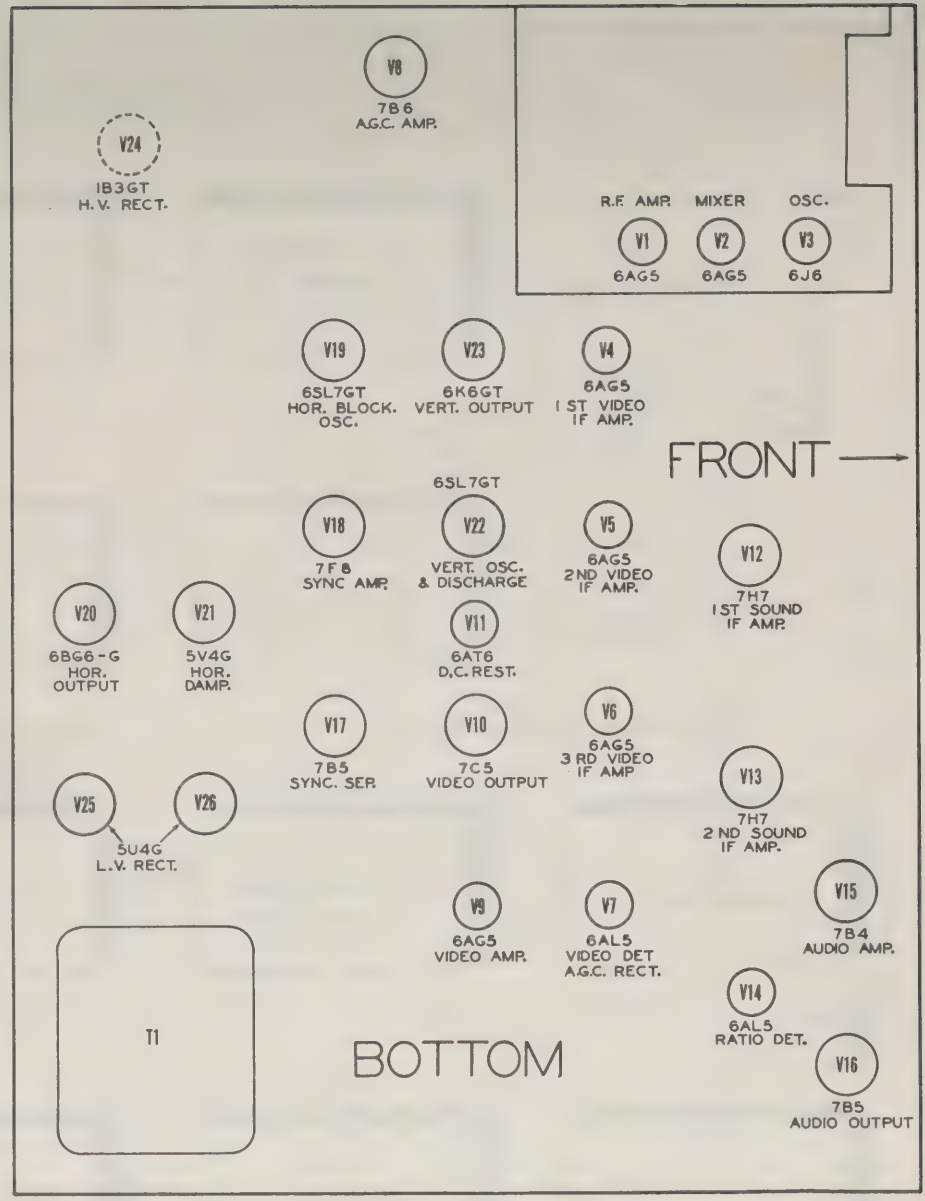



CHASSIS BOTTOM VIEW – RESISTOR IDENTIFICATION



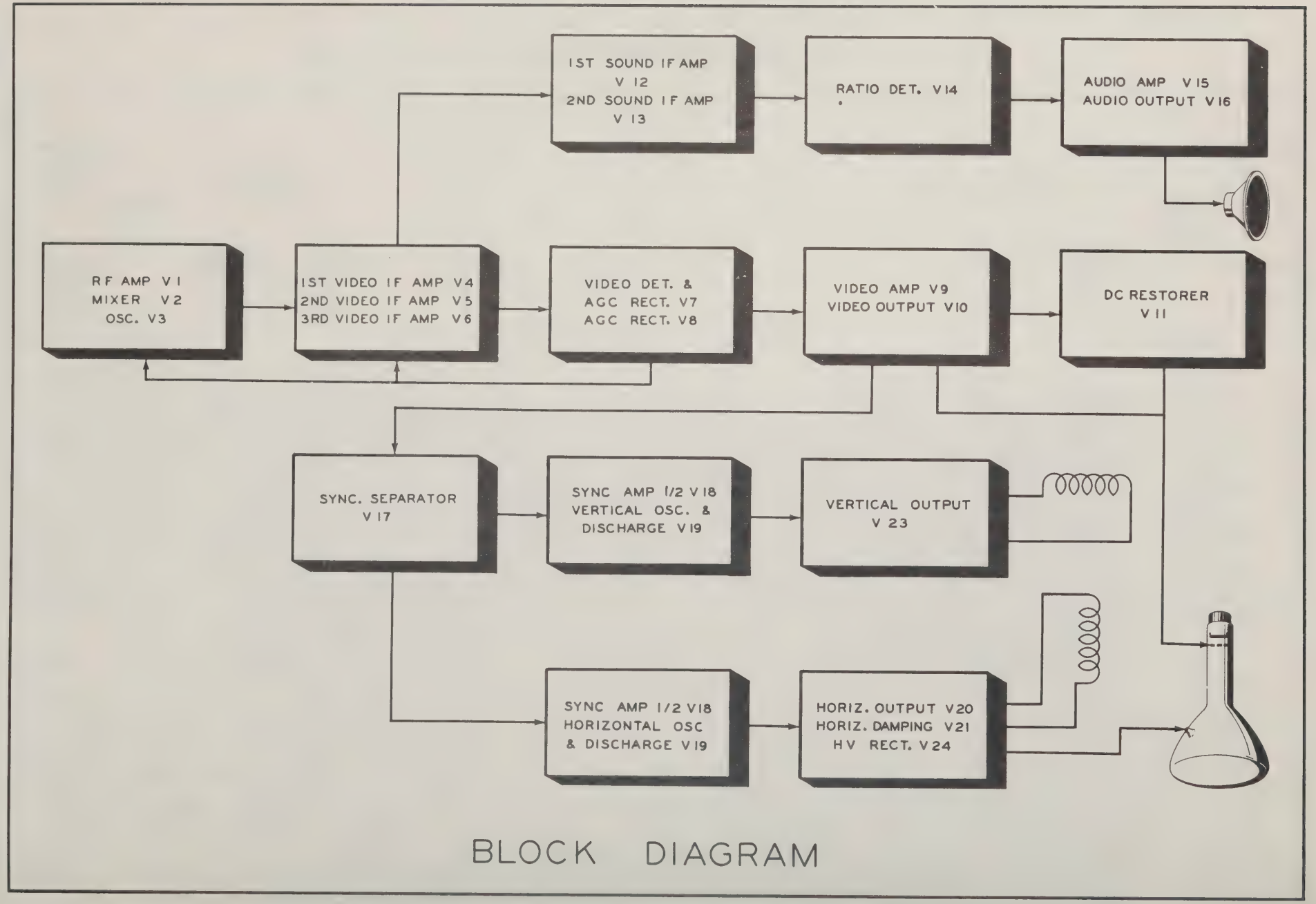

CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION




# TUBE PLACEMENT CHART

**PHILCO MODELS 48-1000, 48-1001, 48-1050**


1ST SOUND IF AMP V 12
2ND SOUND IF AMP V 13
RATIO DET. V14
AUDIO AMP V 15
AUDIO OUTPUT V16
RF AMP V 1
MIXER V2
OSC. V3
1ST VIDEO IF AMP V4
2ND VIDEO IF AMP V5
3RD VIDEO IF AMP V6
VIDEO DET. & AGC RECT. V7
AGC RECT. V8
VIDEO AMP V9
VIDEO OUTPUT V10
DC RESTORER V 11
SYNC. SEPARATOR V 17
SYNC AMP 1/2 V 18
VERTICAL OSC. & DISCHARGE V19
VERTICAL OUTPUT V 23
SYNC AMP 1/2 V18
HORIZONTAL OSC & DISCHARGE V19
HORIZ. OUTPUT V20
HORIZ. DAMPING V21
HV RECT. V24

BLOCK DIAGRAM

# DISASSEMBLY INSTRUCTIONS

MODEL 48-1001

1. Remove 8 screws from back panel and remove panel.
2. Remove five push-on type control knobs and channel indicator from front panel.
3. Unplug deflection yoke cable from rear of chassis.
4. Remove socket from rear of picture tube.
5. Unplug high voltage lead on side of picture tube.
6. Unplug speaker cable.
7. Slide chassis out rear of cabinet, being careful not to put any pressure on rear of picture tube.
8. Remove four nuts and fiber washers holding speaker and remove speaker. If necessary to remove picture tube proceed as follows.
9. Remove two metal braces holding rear of picture tube to cabinet.
10. Remove three nuts, washers and lock washers holding picture tube assembly to front of cabinet and remove assembly.

TO REMOVE PICTURE TUBE FROM ASSEMBLY PROCEED AS FOLLOWS.

11. Loosen thumb nuts holding ion trap and remove.
12. Loosen clamp on face of picture tube.
13. Loosen deflection yoke clamp.
14. Being careful not to put pressure on neck of tube. Remove mounting assembly from tube.

PHILCO
MODEL 49-505

PHILCO
MODEL 49-505

PHILCO MODEL 49-505

| | |
|---|---|
| **TRADE NAME** | Philco, Model 49-505 |
| **MANUFACTURER** | Philco Corp., Tioga & "C" Sts., Philadelphia, Pa. |
| **TYPE SET** | AC-DC Operated Superheterodyne Receiver with Loop Antenna |
| **TUBES (FIVE)** | Types, 7A8 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier. |
| **POWER SUPPLY** | 105-120 Volts AC-DC |
| **TUNING RANGE—BROADCAST** | 540-1620KC RATING .23 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

There are five calibration marks on dial backplate. These are in order from left to right; low frequency limit, 600KC, 1000KC, 1400KC and 1600KC. To set dial pointer turn tuning cap. fully closed and set pointer to low frequency end limit.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD | High side to Pin 6 (grid) of 7A8. Low side to B-. | 455KC | Tuning cap. fully closed | Across voice coil | A1, A2, A3, A4 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation. |
| 2 | | Loop | 1600KC | 1600KC calibration mark. | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3 | | " | 1500KC | Tune for maximum output. | " | A6 | Adjust for maximum output. |

**HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana**

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# PARTS LIST AND DESCRIPTIONS

PHILCO MODEL 49-505

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 7A8 | 7A8 | 8U | |
| 2 | IF Amp. | 14A7 | 14A7 | 8V | |
| 3 | Det.-AVC-AF | 14B6 | 14B6 | 8W | |
| 4 | Power Output | 50A5 | 50A5 | 6AA | |
| 5 | Rectifier | 35Y4 | 35Y4 | 5AL | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: PHILCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 6A | 30 | 150 | 30-2574 | PRSA150/20-30 | E42215 | DSB-403020-150 | TA-303 | Filter-Orange |
| B | 25 | 150 | | PRS150/24 | | | | " -Red |
| C | 20 | 150 | | | | | | " -Blue |
| 7 | .04 | 400 | 45-3500-2 | 484-05 | GT6S4 | ST-6-04 | TC-14 | Line Filter |
| 8 | .2 | 400 | 30-4644 | | | | 72P2 | Line Isolation-Note |
| 9 | .02 | 400 | 61-0108 | 484-02 | GT4S2 | ST-4-02 | TC-12 | Output Plate Bypass |
| 10 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | Audio Coupling |
| 11 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | " " |
| 12 | .05 | 200 | 61-0122 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 13 | .05 | 200 | 61-0122 | 484-05 | GT2S5 | ST-4-05 | TC-15 | Screen Bypass |
| 14 | 330 | 300 | 62-133001001 | 1468-00035 | 5W5T3 | MO.5-33 | 1FM-33 | Output Grid Bypass-Cer. |
| 15 | 47 | 500 | 30-1224-2 | 1469-00005 | 5W5Q5 | MOS.5-45 | MS-45 | Osc. Grid Cap.-Silver |
| 16 | 5 | 300 | 30-1224-5 | 1468-000005 | 5W5V5 | MO.5-55 | MS-55 | Ext. Ant. Coupling-Cer. |

Note-Special inductively wound capacitor.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: PHILCO PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 17A | 500KΩ | ½ | 45-5007 | D13-133 | M-60-Z | Volume Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 17A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |

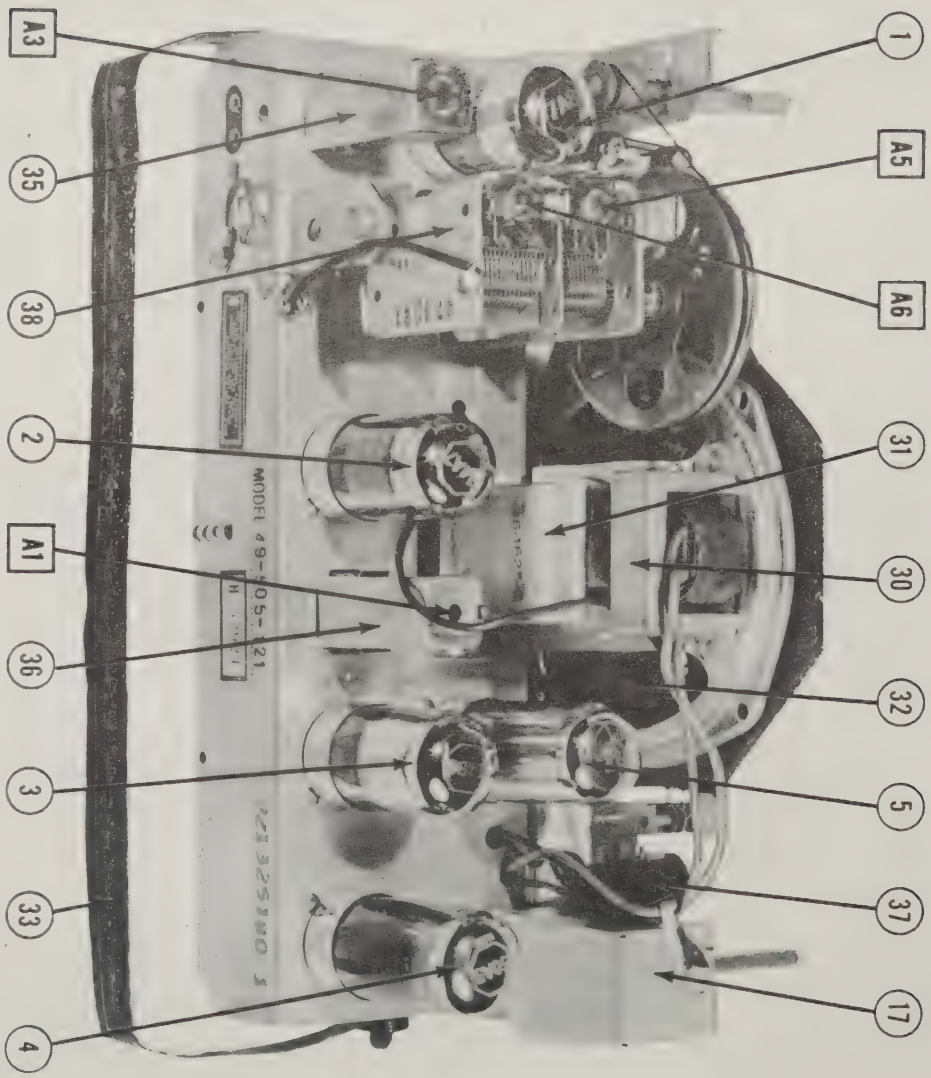
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: PHILCO PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 18 | 100KΩ | ½ | 66-4103340 | BTS-100K | Br.-Blk.-Yl. Osc. Grid |
| 19 | 27KΩ | ½ | 66-3273340 | BTS-27K | Red-Vi.-Or. Screen Dropping |
| 20 | 47KΩ | ½ | 66-3473340 | BTS-47K | Yl.-Vi.-Or. Diode Filter |
| 21 | 2.2 Meg. | ½ | 66-5223340 | BTS-2.2 Meg | Red-Red-Grn. AVC Network |
| 22 | 3.3 Meg. | ½ | 66-5333340 | BTS-3.3 Meg | Or.-Or.-Grn. AF Grid |
| 23 | 470KΩ | ½ | 66-4473340 | BTS-470K | Yl.-Vi.-Yl. AF Plate Load |
| 24 | 470KΩ | ½ | 66-4473340 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 25 | 130Ω | ½ | 66-1133340 | BW-½-150 | Br.-Or.-Br. Output Cathode |
| 26 | 1200Ω | ½ | 66-2123340 | BTS-1200 | Br.-Red-Red Filter |
| 27 | 220Ω | 1 | 66-1224340 | BW-1-220 | Red-Red-Br. " |
| 28 | 150KΩ | ½ | 66-4153340 | BTS-150K | Br.-Grn.-Yl. Line Isolation |
| 29 | 150KΩ | ½ | 66-4153340 | BTS-150K | Br.-Grn.-Yl. Ant. Loading |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: PHILCO PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 30 | 1760Ω | 3.5Ω | 237Ω | .6Ω | Part of 36-1625-6 | A-3876 | T22S45 | A-2928 | |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA PHILCO PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-105† | | †Drill and tap magnet frame. |
| 31 | PM | 3.5Ω | 36-1625-6 | Mod. P5-X | 5A15† | |
| | CONE DIA. | VC DIA. | | | | |
| 32 | 4" | 9/16" | | | | |

## R F COILS

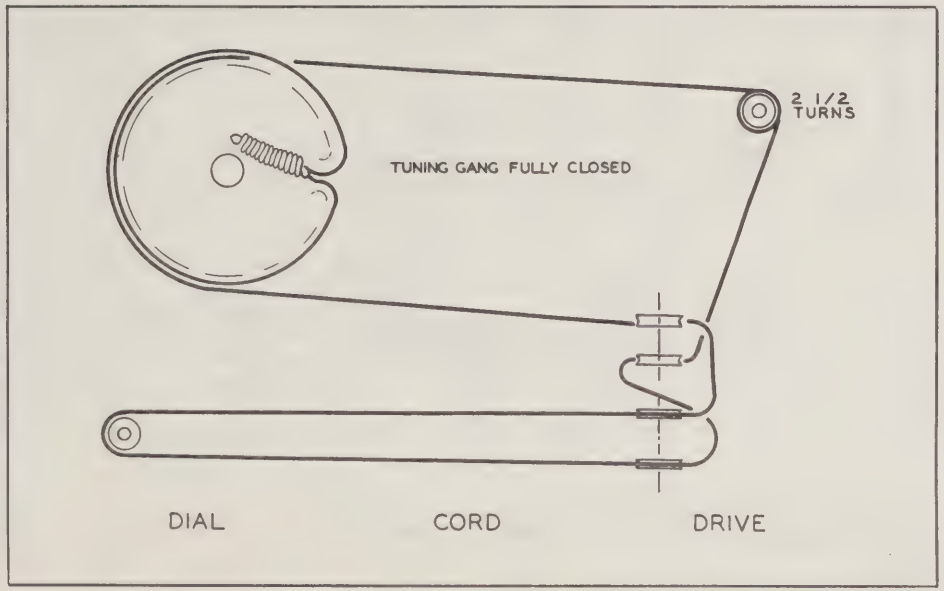
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA PHILCO PART No. | MEISSNER PART No. |
|---|---|---|---|---|---|
| 33 | Loop Ant. | | 3.5Ω | 32-4052-24 | |
| 34 | Osc. Coil | 2.6Ω | 7.5Ω | 32-4263 | 14-1060 |
| 35 | Input IF | 22Ω | 22Ω | 32-4160-6 | 16-6678 |
| 36 | Output IF | 15Ω | 15Ω | 32-4240 | |

## DIAL LIGHT

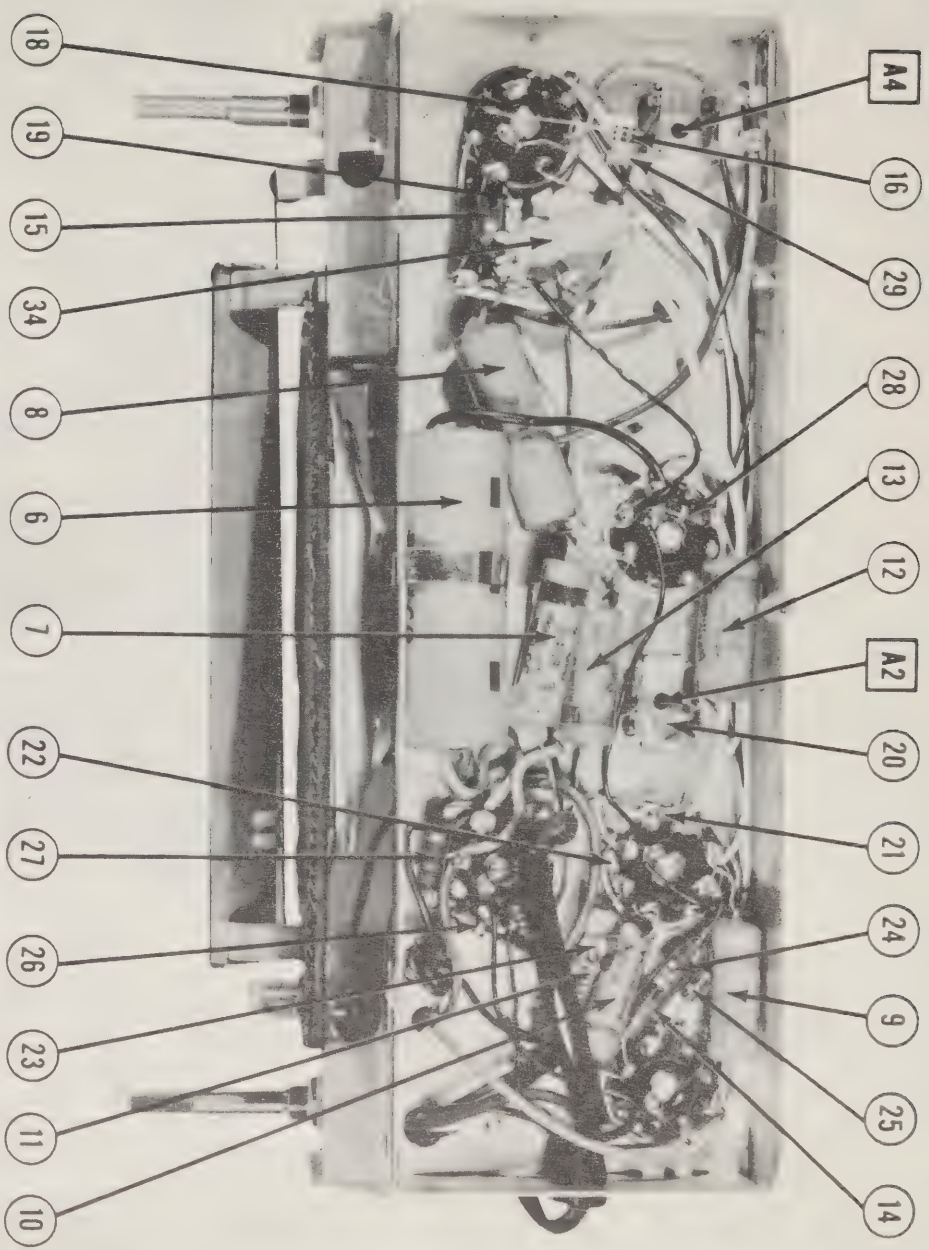
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA PHILCO PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 37 | Bayonet | 6-8 | 0.15 | Brown | 34-2068 | | Type #47 |

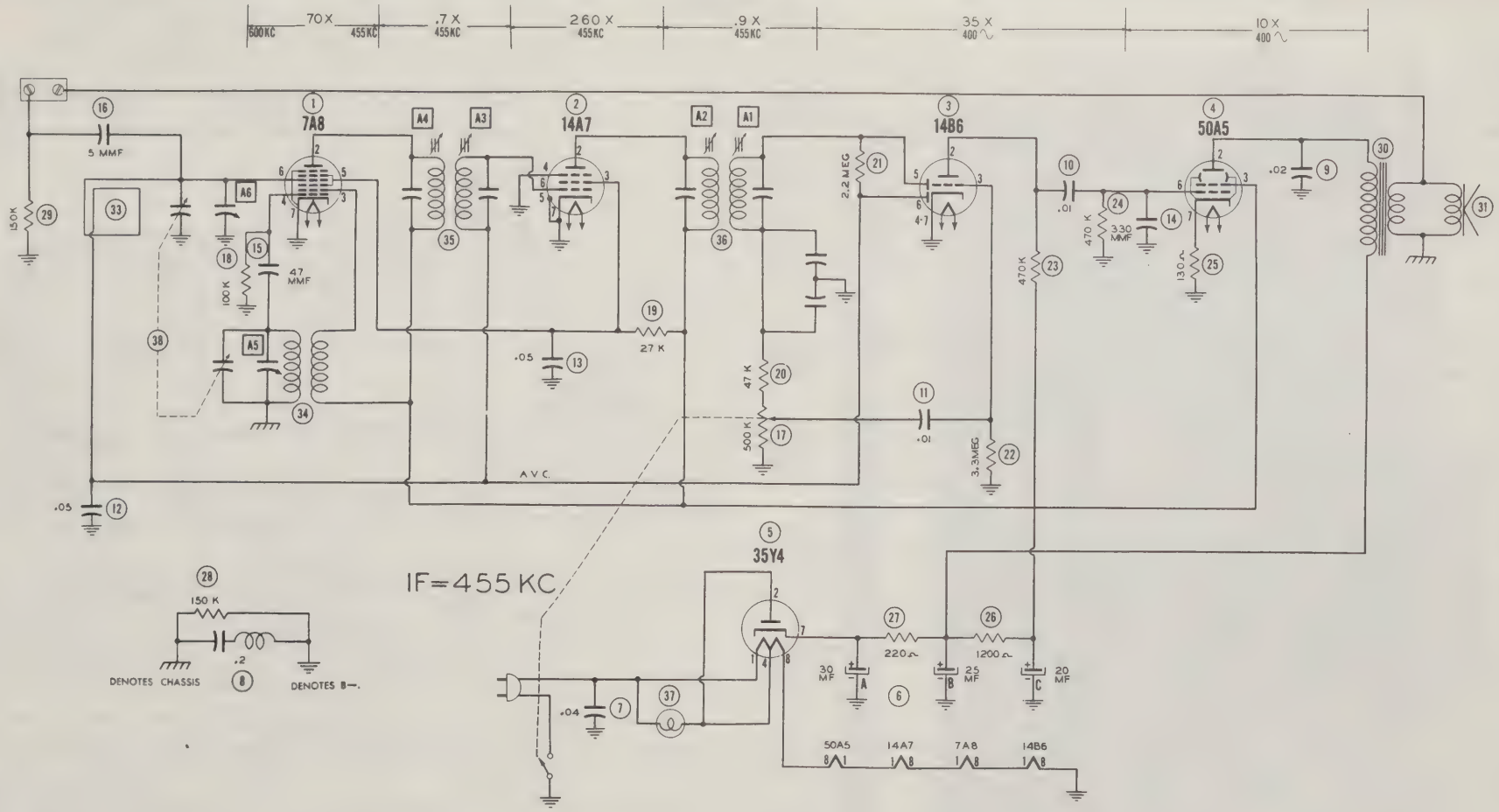
## MISCELLANEOUS

| ITEM No. | PART NAME | PHILCO PART No. | NOTES |
|---|---|---|---|
| 38 | 2 Gang Var. Cap | 31-2727-1 | (19-471MMF, 34-178MMF) |
| | Cabinet | 10717 | |
| | Knob | 54-4609 | |
| | Dial Pointer | 56-4362-4FCP | |




## CHASSIS—BOTTOM VIEW






VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7A8 | 18VAC | 98VDC | 98VDC | -7.5VDC§ | 30VDC | -.8VDC | 0V. | 11VAC |
| 2 | 14A7 | 32VAC | 98VDC | 30VDC | 0V. | 0V. | -.6VDC | 0V. | 18VAC |
| 3 | 14B6 | 11VAC | 50VDC | -.6VDC | 0V. | -.4VDC | -.6VDC | 0V. | 0V. |
| 4 | 50A5 | 32VAC | 100VDC | 98VDC | 0V. | 0V. | 0V. | 6.5VDC | 85VAC |
| 5 | 35Y4 | 117VAC | 115VAC | 100VDC | 115VAC | 110VDC | 110VDC | 125VDC | 85VAC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7A8 | 20Ω | 100KΩ | 100KΩ | 100KΩ | 130KΩ | 2.5 Meg. | 0Ω | 12Ω |
| 2 | 14A7 | 32Ω | 100KΩ | 130KΩ | 0Ω | 0Ω | 2.5 Meg. | 0Ω | 20Ω |
| 3 | 14B6 | 12Ω | 570KΩ | 3.3 Meg. | 0Ω | 550KΩ | 2.5 Meg. | 0Ω | 0Ω |
| 4 | 50A5 | 32Ω | 100KΩ | 100KΩ | INF. | 500KΩ | 470KΩ | 130Ω | 80Ω |
| 5 | 35Y4 | 110Ω | 110Ω | 100KΩ | 110Ω | 100KΩ | 100KΩ | 100KΩ | 80Ω |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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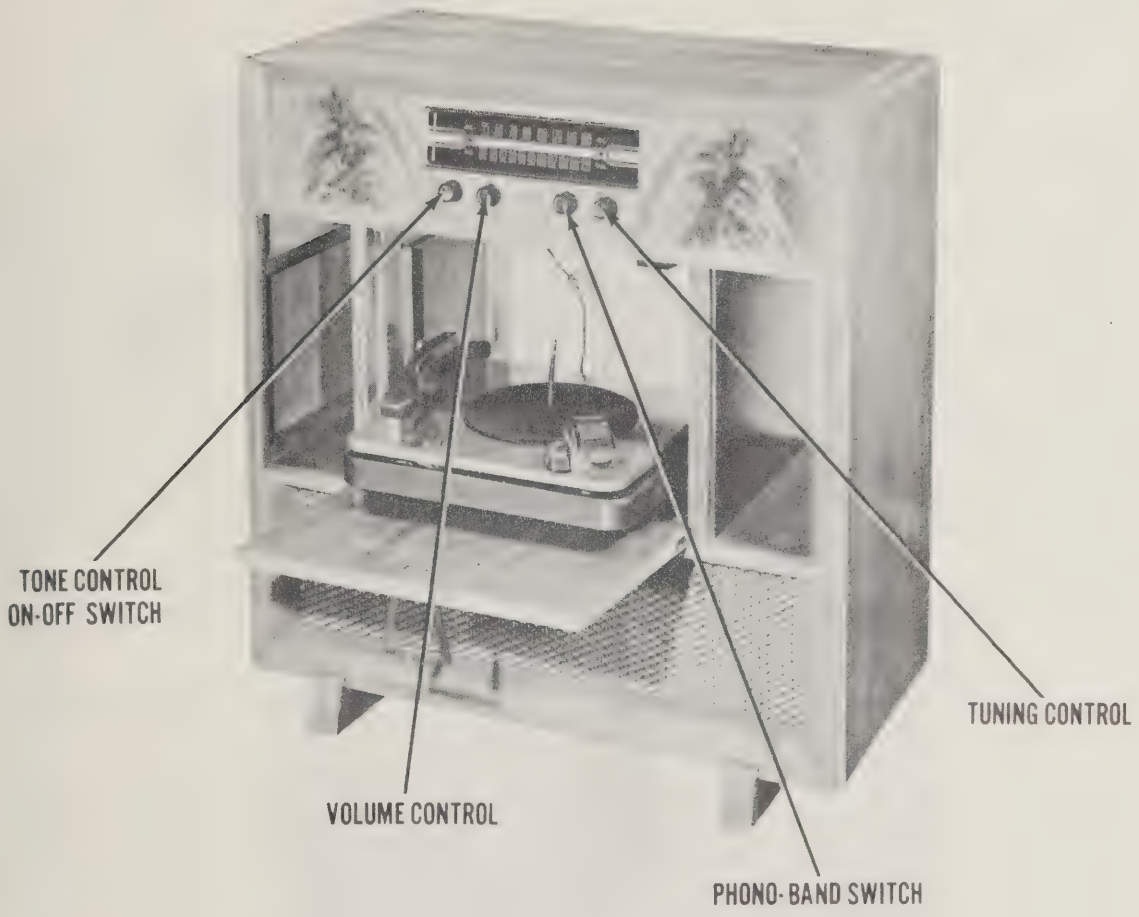
**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHILCO MODELS
49-1606, 49-1607




PHILCO MODELS
49-1606, 49-1607

| | |
|---|---|
| TRADE NAME | Philco, Models 49-1606, 49-1607 |
| MANUFACTURER | Philco Corp., Tioga & "C" Sts., Philadelphia, Pa. |
| TYPE SET | AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna |
| TUBES (SEVEN) | Types, 12AU6 FM RF Amp., 14F8 FM Converter, 12AU7 AM Converter, 6BJ6 1st IF Amp., 6BJ6 2nd IF Amp., 19T8 Det.-AVC-AF, 50C6G Power Output. |
| POWER SUPPLY | 105-125 Volts AC |
| RATING | .50 Amp. @ 117 Volts AC |
| TUNING RANGE-BROADCAST | 540-1620KC FREQ. MOD. 88 - 108MC |

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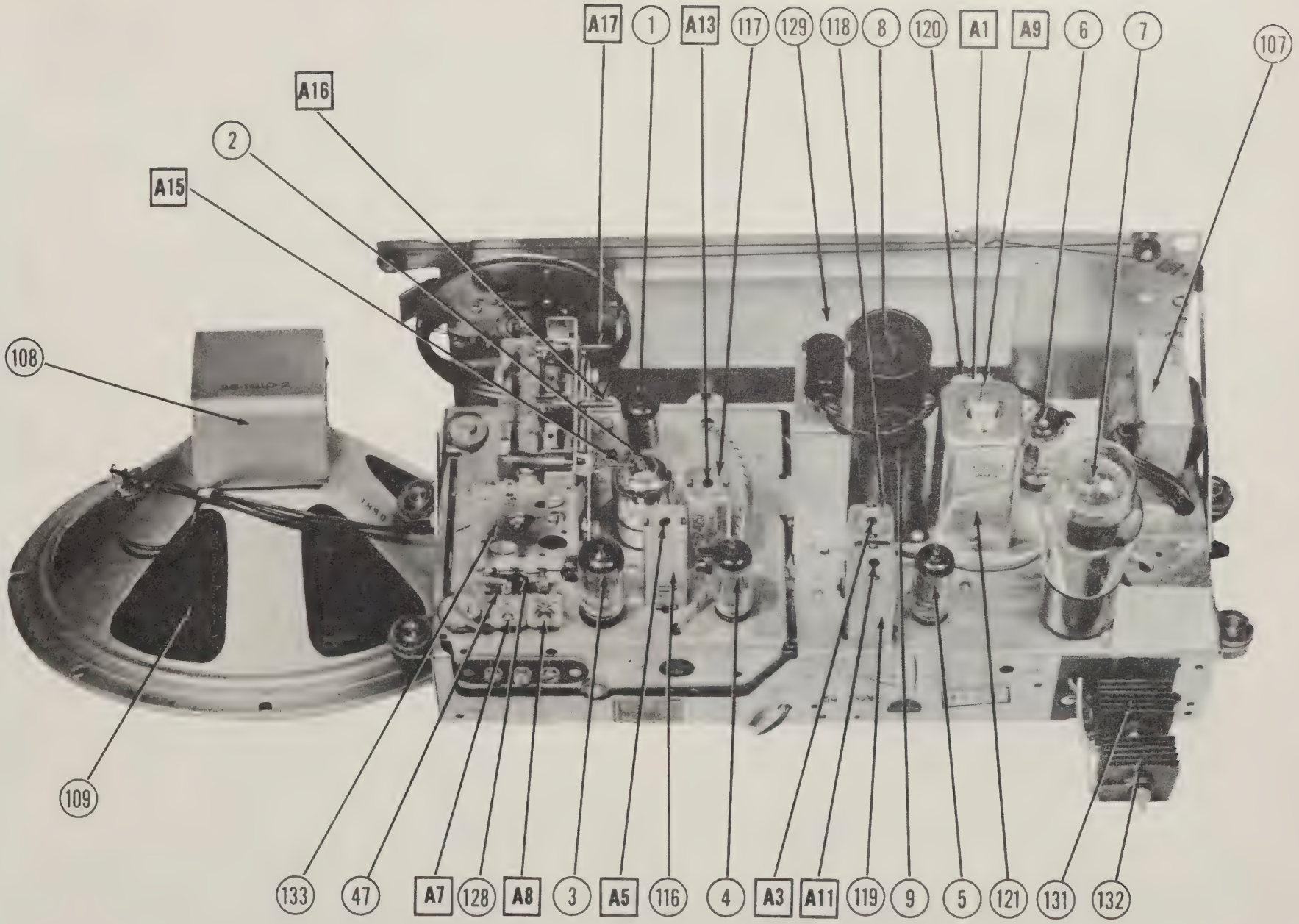
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 1/49-#491-19 SET #53-FOLDER #1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# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | FM RF Amp. | 12AU6 | 12AU6 | 7BK | |
| 2 | FM Converter | 14F8 | 14F8 | 8BW | |
| 3 | AM Converter | 12AU7 | 12AU7 | 9A | |
| 4 | 1st IF Amp. ● | 6BJ6 | 6BJ6 | 7CM | |
| 5 | 2nd IF Amp. | 6BJ6 | 6BJ6 | 7CM | |
| 6 | Det.-AVC-AF | 19T8 | 19T8 | | |
| 7 | Power Output | 50C6G | 50C6G | 7AC | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: PHILCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 8A | 40 | 300 | 30-2568-24 | AF88J | UP222245 | DY-403♯ | D13307 | ◓ Filter |
| B | 40 | 300 | | | | | | ■ " |
| C | 20 | 300 | | PRSA450/20-20 | | | | ▲ " |
| D | 10 | 300 | | | BR1235 | M-10-350 | | " |
| 9 | 40 | 200 | 30-2568-28 | AF44F* | UP4025 | DY-2x20-350* | D13318 | Voltage Doubler |
| 10 | 2 | 50 | 30-2417-7 | | BR245 | | | Stabalizing Cap. |
| 11 | .04 | 400 | 30-4119 | 484-05 | GT684 | ST-6-04 | TC-14 | Line Filter |
| 12 | .05 | 400 | 61-0170 | 484-05‡ | GT4S5‡ | ST-4-05‡ | 72P1 | Line Isolation |
| 13 | .03 | 400 | 45-3500-1 | 484-03 | GT4S3 | ST-4-03 | TC-13 | " " |
| 14 | .006 | 600 | 45-3500-7 | 684-006 | GT6D6 | ST-6-006 | TC-26 | Output Plate Bypass |
| 15 | .006 | 400 | 45-3500-7 | 484-006 | GT6D6 | ST-6-006 | TC-26 | Audio Coupling |
| 16 | .006 | 400 | 45-3500-7 | 484-006 | GT6D6 | ST-6-006 | TC-26 | " " |
| 17 | .02 | 400 | 61-0108 | 484-02 | GT4S2 | ST-4-02 | TC-12 | " " |
| 18 | .006 | 400 | 45-3500-7 | 484-006 | GT6D6 | ST-6-006 | TC-26 | Tone Compensation |
| 19 | .006 | 400 | 45-3500-7 | 484-006 | GT6D6 | ST-6-006 | TC-26 | " " |
| 20 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | FM Diode Load Cap. |
| 21 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | RF Bypass |
| 22 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | 2nd IF Plate Decoup. |
| 23 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | 2nd IF Screen Bypass |
| 24 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | 2nd IF Cath. Bypass |
| 25 | .004 | 600 | 61-0179 | 684-004 | GT6D4 | ST-6-004 | TC-24 | 1st IF Decoupling |
| 26 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | AVC Filter |
| 27 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | " " |
| 28 | .05 | 400 | 61-0122 | 484-05 | GT4S5 | ST-4-05 | TC-15 | RF Bypass |
| 29 | .01 | 600 | 61-0120 | 684-01 | GT6S1 | ST-6-01 | TC-11 | AM Conv. Plate Decoup. |
| 30 | .01 | 600 | 61-0120 | 684-01 | GT6S1 | ST-6-01 | TC-11 | FM Conv. Decoupling |
| 31 | .03 | 400 | 45-3500-1 | 484-03 | GT4S3 | ST-4-03 | TC-13 | RF Bypass |
| 32 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | AM Tuning Cap. Isol. |
| 33 | .01 | 400 | 61-0120 | 484-01 | GT4S1 | ST-4-01 | TC-11 | Fil. Bypass |
| 34 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Output Grid Bypass-Cer. |
| 35 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | AF Plate Bypass " |
| 36 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | RF Bypass " |
| 37 | 2700 | 500 | | 1467-0025 | 1W5D25 | MW.5-225 | 1FM-23 | De-emphasis " |
| 38 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | RF Bypass " |
| 39 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 40 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 41 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 42 | 1500 | 300 | 62-215001011 | 1467-0015 | 1W5D15 | MW.5-215 | 1FM-215 | RF Byp. PowerSupply " |
| 43 | 220 | 300 | 62-122001001 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | AM Osc. Grid Cap. " |
| 44 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | AM Osc. Coupling " |
| 45 | 1500 | 300 | 62-215001001 | 1467-0015 | 1W5D15 | MW.5-215 | 1FM-215 | AM Conv. Cath. Byp. " |
| 46 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | AM RF Coupling " |
| 47 | 10 | 300 | 62-010009001 | 1469-00001 | 5R5Q1 | MO8.5-41 | M8-41 | Ext. Ant. Connection " |
| 48 | 1500 | 300 | 62-215001011 | 1467-0015 | 1W5D15 | MW.5-215 | 1FM-215 | FM Osc. Decoup. " |
| 49 | 220 | 300 | 62-122001001 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | FM Osc. Coupling " |
| 50 | 51 | 300 | 30-1224-2 | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | FM Osc. Grid Cap. " |
| 51 | 220 | 300 | 62-122001001 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | FM Osc. Coupling " |
| 52 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | FM Conv. Cath. Byp. " |
| 53 | 220 | 300 | 62-122001001 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | FM RF Coup.-Note 1 " |
| 54 | 51 | 300 | 30-1224-2 | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | " " " " |
| 55 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | RF Screen Bypass " |
| 56 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | RF Cath. Bypass " |
| 57 | 51 | 300 | 30-1224-2 | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | RF Coupling " |

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: THORDAR'N PART No. | REPLACEMENT DATA: MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 107 | 2500Ω | 3.9Ω | 180Ω | .5Ω | 32-8367 | A-3849 | T22S47 | A-2902 | |

## SPEAKER

| ITEM No. | RATINGS: FIELD / VC IMP. | RATINGS: PM / 3.9Ω | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: JENSEN PART No. | REPLACEMENT DATA: QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 108 | FIELD / VC IMP. | PM / 3.9Ω | 36-1626-1 | ST-120† Mod. P10-S | 10A31 | Original Part #36-1610-2. †Replace output transformer to match 6-8Ω voice coil. |
| 109 | CONE DIA. | VC DIA. | | | | |
| | 9½" | 1" | | | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: MEISSNER PART No. | |
|---|---|---|---|---|---|---|
| 110 | Loop Ant. | | 0Ω | 76-3563-9 | | |
| 111 | Ant. Coil AM | | 1.6Ω | 32-4033-11 | | |
| 112 | " " FM | | 0Ω | 32-4158-1 | | |
| 113 | RF Coil FM | | 0Ω | 32-4159-1 | | |
| 114 | Osc. Coil BC | | 11Ω | 32-4221-1 | 14-1060 | |
| 115 | " " FM | | 0Ω | 32-4018-5 | | |
| 116 | 1st IF AM | 8.5Ω§ | 19Ω | 32-4258 | | §20Ω Tertiary Winding |
| 117 | " " FM | 1Ω | 1.2Ω | 32-4257 | | |
| 118 | 2nd IF AM | 7.6Ω | 7.8Ω | 32-4160-3 | | |
| 119 | " " FM | 1Ω | 1Ω | 32-4257-1 | | |
| 120 | 3rd IF AM | 16Ω | 15.8Ω | 32-4240-2 | | |
| 121 | FM Det. Trans. | 1.5Ω | 0Ω | 32-4261-1 | | |
| 122 | FM RF Plate Choke | | .5Ω | 32-4061-2 | | |
| 123 | Osc. Cath. Choke | | .5Ω | 32-4061-2 | | |
| 124 | FM Osc. Plate Chk. | | .5Ω | 32-4061-2 | | |
| 125 | RF Isolating Choke | | .5Ω | 32-4061-2 | | |
| 126 | Fil. Choke | | 1.5Ω | 32-4143-4 | | |
| 127 | Line Isol. Choke | | .5Ω | 32-4061-2 | | |
| 128 | RF Isolation Choke | | .5Ω | | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 129 | Screw | 117V | | | 34-2605 | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | PHILCO PART No. | NOTES |
|---|---|---|---|
| 130 | Switch | 42-1374 | Function |
| 131 | Rectifier | 34-8003-1 | Selenium |
| 132 | " | 34-8003-1 | " |
| 133 | 2 Gang Var. Cap. | 31-3724-3 | (18-510MMF, 20-256MMF) |
| A7 | Trimmer Strip | 31-6476-18 | BC Osc. Adj. |
| A8 | | | BC Ant. Adj. |
| | Dial Scale | 54-5021 | |
| | Dial Pointer | 56-5630-2 | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | PHILCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | |
| 58 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Fil. Bypass Cer. |
| 59 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 60 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 61 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 62 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | RF Bypass " |
| 63 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | " " " |
| 64 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Ext. Ant. Coupling " |
| 65 | 100 | 300 | 62-110009001 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Ext. Ant. Coupling " |
| 66 | 51 | 300 | 30-1224-2 | 1468-00005 | 5W5S5 | MO.5-45 | 1FM-45 | AF Grid Bypass-Note2 " |

*Parallel sections to obtain desired capacity. #Omit bypass section.
‡Wind same number of turns around replacement as were around original capacitor.
Note 1-Some models may use 100MMF in this application. Replacement same as Item #52.
Note 2-Not used in all models.

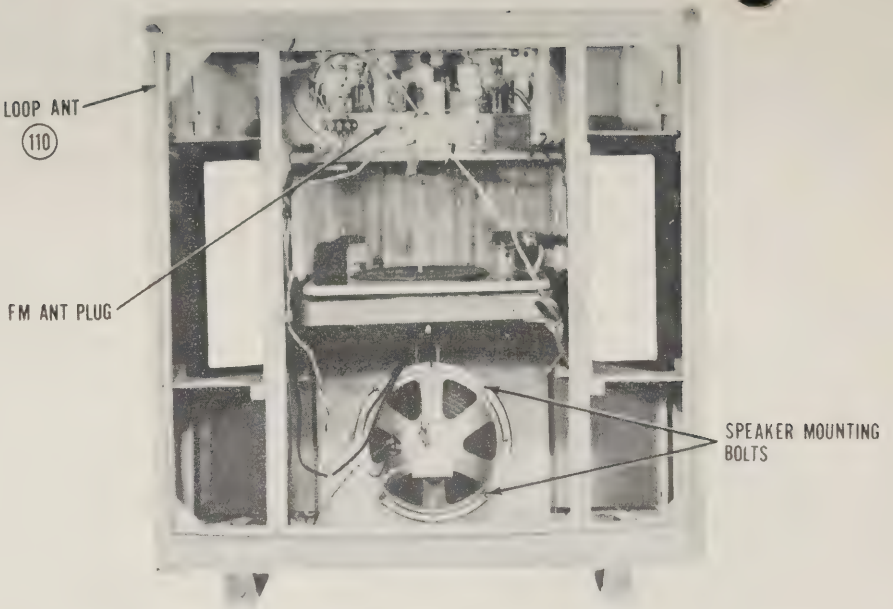
## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | PHILCO PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 67A | 2 Meg. | ½ | 35-5535-17 | D18-139X | T-116 | Volume Control tapped @ 1 Meg. |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 67A per instructions |
| 68 | 4 Meg. | ½ | 33-5538-34 | | | Tone Control |

## RESISTORS

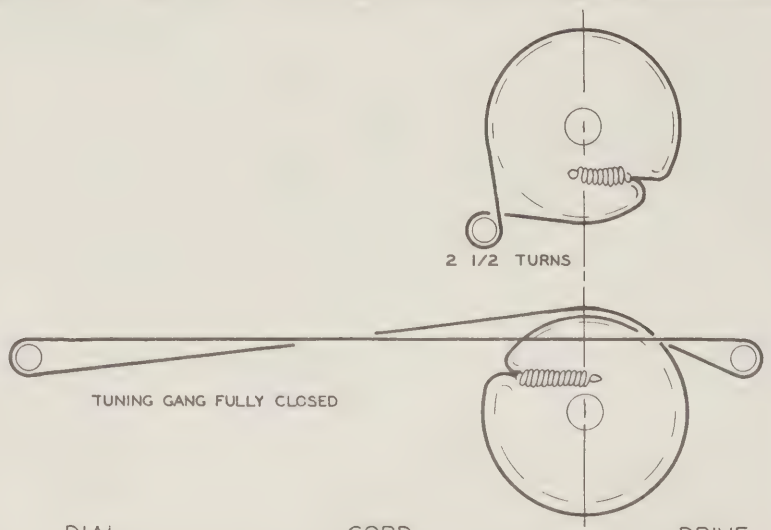
| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | PHILCO PART No. | IRC PART No. | |
| 69 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. RF Grid |
| 70 | 100Ω | ½ | 66-1103340 | | Br.-Blk.-Br. RF Cathode |
| 71 | 15KΩ | ½ | 66-3153340 | BTS-15K | Br.-Grn.-Or. RF Screen |
| 72 | 68Ω | ½ | 66-0683340 | | Blue-Gray-Blk. Parasitic Suppressor |
| 73 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. FM Conv. Grid |
| 74 | 1500Ω | ½ | 66-2153340 | BTS-1500 | Br.-Grn.-Red FM Conv. Cathode |
| 75 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. FM Conv. Plate Decoup. |
| 76 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. FM Osc. Plate |
| 77 | 15KΩ | ½ | 66-3153340 | BTS-15K | Br.-Grn.-Or. FM Osc. Grid |
| 78 | 68Ω | ½ | 66-0683340 | | Blue-Gray-Blk. Parasitic Suppressor |
| 79 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. AM Conv. Grid |
| 80 | 1500Ω | ½ | 66-2153340 | BTS-1500 | Br.-Grn.-Red AM Conv. Cathode |
| 81 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. AM Conv. Plate Decoup. |
| 82 | 15KΩ | ½ | 66-3153340 | BTS-15K | Br.-Grn.-Or. AM Osc. Grid |
| 83 | 33KΩ | ½ | | BTS-33K | Or.-Or.-Or. AM Osc. Plate |
| 84 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 85 | 47Ω | ½ | 66-0473340 | | Yl.-Vi.-Blk. 1st IF Cathode |
| 86 | 1000Ω | ½ | 66-2103340 | BTS-1000 | Br.-Blk.-Red 1st IF Decoup. |
| 87 | 68Ω | ½ | 66-0683340 | | Blue-Gray-Blk. Parasitic Suppressor |
| 88 | 3.3 Meg. | ½ | 66-5333340 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 89 | 68Ω | ½ | 66-0683340 | | Blue-Gray-Blk. 2nd IF Cathode |
| 90 | 10KΩ | ½ | 66-3103340 | BTS-10K | Br.-Blk.-Or. 2nd IF Screen |
| 91 | 1000Ω | ½ | 66-2103340 | BTS-1000 | Br.-Blk.-Red 2nd IF Plate Decoup. |
| 92 | 2200Ω | ½ | 66-2223340 | BTS-2200 | Red-Red-Red Voltage Dropping-See Note 3 |
| 93 | 47KΩ | ½ | 66-3473340 | BTS-47K | Yl.-Vi.-Or. Diode Filter |
| 94 | 330KΩ | ½ | 66-4333340 | BTS-330K | Or.-Or.-Yl. Diode Load |
| 95 | 47KΩ | ½ | 66-3473340 | BTS-47K | Yl.-Vi.-Or. De-emphasis |
| 96 | 100KΩ | ½ | 66-4103340 | BTS-100K | Br.-Blk.-Yl. Tone Compensation |
| 97 | 47KΩ | ½ | 66-3473340 | BTS-47K | Yl.-Vi.-Or. Ratio Det. Diode Load |
| 98 | 47KΩ | ½ | 66-3473340 | BTS-47K | Yl.-Vi.-Or. Tone Compensation |
| 99 | 10 Meg. | ½ | 66-6103340 | BTS-10 Meg. | Br.-Blk.-Blue AM Grid |
| 100 | 270KΩ | ½ | 66-4273340 | BTS-270K | Red-Vi.-Yl. AF Plate Load |
| 101 | 470KΩ | ½ | 66-4473340 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 102 | 220Ω | 2 | | BW-2-220 | Red-Red-Br. Output Cathode |
| 103 | 2200Ω | 1 | 66-2224340 | BTS-2200 | Red-Red-Red Filter |
| 104A | 2500Ω | 10 | 33-3435-17 | AB-2500 | " |
| B | 200Ω | 10 | | AB-200 | " |
| 105A | 50Ω | 7 | 33-1335-54 | AB-50 | Surge Limiter-See Note 4 |
| B | 25Ω | 1 | 33-1334-5 | BW-1-27 | " " " " " |
| 106 | 25Ω | 1 | 33-1334-5 | BW-1-27 | Rectifier Ballast-See Note 4 |

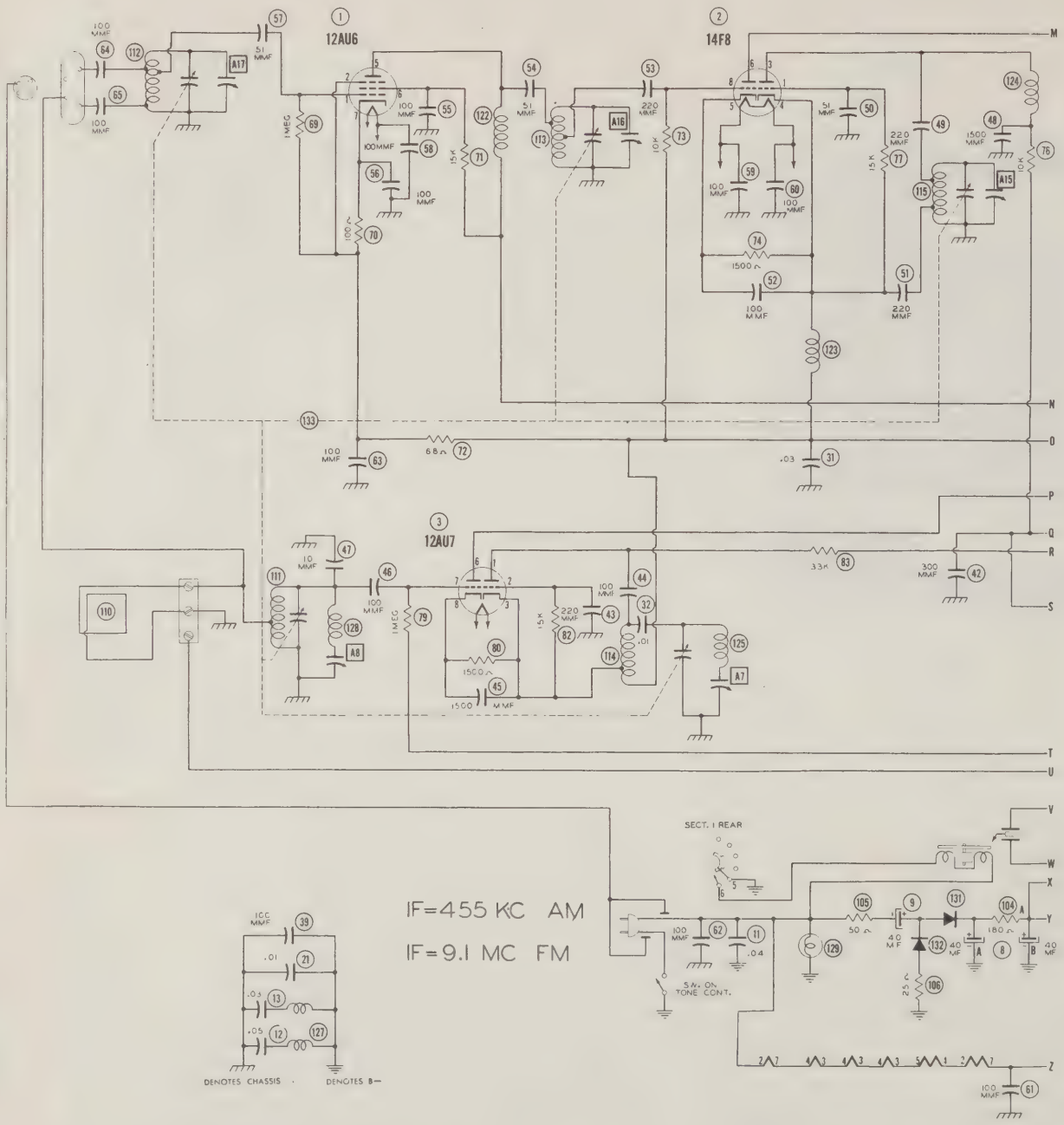
Note 3-Not used in all models.
Note 4-Item 105A is replaced by 105B when Item 106 is used.




DISASSEMBLY INSTRUCTIONS

1. Disconnect phono motor plug and phono pickup plug.
2. Remove loop antenna leads and speaker leads from terminal strip from rear of sub-chassis.
3. Remove four 11/32" nuts from speaker mounting bolts. Remove speaker.
4. Remove four push-on type control knobs.
5. Remove four 7/16" metal type screws from underneath chassis. Remove chassis.






VOLTAGE READINGS

| | Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ‡ | 1 | 12AU6 | .5VDC | 4.2VDC | 44VAC | 55VAC | 205VDC | 160VDC | 5.3VDC | - | - |
| ‡ | 2 | 14F8 | 1.4VDC§ | 31VAC | .97VDC | 3.7VDC | 6.3VDC | 115VDC | -.18VAC | 3.<VDC | - |
| | 3 | 12AU7 | 50VDC | 2.6VDC§ | 2.8VDC | 44VAC | 31VAC | 140VDC | -.4VDC | 4.7VDC | - |
| | 4 | 6BJ6 | -.4VDC | .9VDC | 55VAC | 60VAC | 165VDC | 165VDC | 0V. | - | - |
| | 5 | 6BJ6 | 0V. | 1VDC | 60VAC | 65VAC | 190VDC | 125VDC | 0V. | - | - |
| | 6 | 19T8 | -.5VDC | -1.1VDC | -.5VDC | 0V. | 18VAC | -4.8VDC | 0V. | 0V. | 65VDC |
| | 7 | 50C6G | 0V. | 117VAC | 195VDC | 168VDC | 0V. | 0V. | 65VAC | 15VDC | - |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| | Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ‡ | 1 | 12AU6 | 1 Meg. | 200Ω | 38Ω | 48Ω | 50KΩ | 65KΩ | 300Ω | - | - |
| ‡ | 2 | 14F8 | 15KΩ | 2ΩΩ | 60KΩ | 136Ω | 1.7KΩ | 60KΩ | 1d.5Ω | 10KΩ | - |
| | 3 | 12AU7 | 85KΩ | 15KΩ | 140Ω | 5Ω | 28Ω | 60KΩ | 4.6 Meg. | 1.7KΩ | - |
| | 4 | 6BJ6 | 4.6 Meg. | 115Ω | 46Ω | 5Ω | 50KΩ | 50KΩ | 68Ω | - | - |
| | 5 | 6BJ6 | 8.2Ω | 6Ω | 5Ω | 5Ω | 50KΩ | 60KΩ | 0Ω | - | - |
| | 6 | 19T8 | INF. | 47KΩ | INF. | 0Ω | 17Ω | 340KΩ | 0Ω | 10 Meg. | 320KΩ |
| | 7 | 50C6G | 0Ω | .0Ω | 50KΩ | 50KΩ | 470Ω | 0Ω | 50Ω | 22Ω | - |

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.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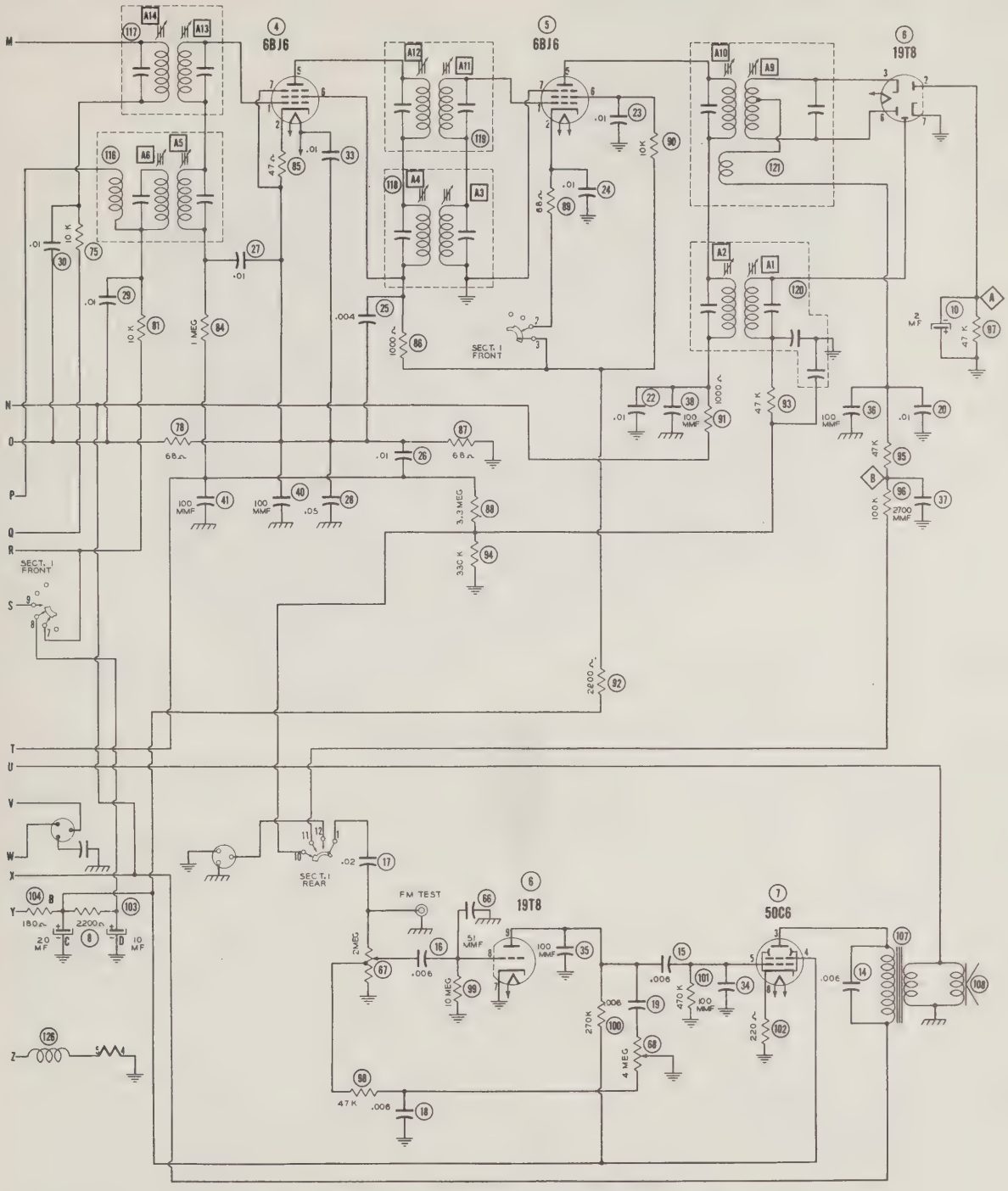


STAGE GAIN MEASUREMENTS

| | | | | | |
|---|---|---|---|---|---|
| CONVERSION GAIN | 18X | 600KC<br>455KC | 2nd IF TUBE | 250X | 455KC |
| INPUT IF TRANSFORMER | 2X | 455KC | OUTPUT IF TRANSFORMER | .4X | 455KC |
| 1st IF TUBE | 2X | 455KC | AUDIO | 35X | 400 ∿ |
| INTER. IF TRANSFORMER | .5X | 455KC | OUTPUT | 10X | 400 ∿ |

**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**


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## ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Do not attempt any part of FM alignment until all AM alignment is completed.
Allow signal generator and receiver to warm up for at least fifteen minutes before beginning alignment.
To set dial pointer turn tuning cap. fully closed and set pointer 3-11/16" from extreme left edge of dial backplate. This is the calibration mark referred to below.
Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

## AM ALIGNMENT

Make all alignment with loop antenna connected to receiver.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | .1 MFD | High side to terminal #1 on broadcast ant. terminal strip. Low side to B-. | 455KC | AM (fully counter clock-wise) | Tuning cap. fully closed | Across voice coil | A1,A2, A3,A4, A5,A6 | Adjust for maximum output in order given. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 2 | | Loop | 1600KC | " | 5-11/16" from calibration mark. | " | A7 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3 | | " | 1500KC | " | Tune for max-imum output. | " | A8 | Adjust for maximum output. |

## FM IF ALIGNMENT USING AM SIGNAL GENERATOR VTVM & OUTPUT METER

If a VTVM is not available, a 20,000 ohms per volt DC voltmeter may be used.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4 | .1 MFD. | High side to Pin 1 (grid) of 6BJ6 1st IF Tube (4). Low side to B-. | 9.1MC (400 ∿ AM Modula-tion) | FM (Center position | Tuning cap. fully closed | DC probe to Point (A). Common to B-. | A9,A10 A11,A12 | Attenuate output of signal generator to maintain maximum meter reading of 10 volts. Adjust for maximum de-flection. Once alignment is satis-factory do not change any of these adjustments except for A9 in Step 6. |
| 5 | .. MFD. | High side to Pin 8 (grid) of 14F8. Low side to B-. | " | " | " | " | A13, A14 | Attenuate output of sig. gen. to maintain maximum meter reading of 10 volts. Adjust for maximum de-flection and repeat. Once align-ment is satisfactory do not change either of these adjustments. |
| | | | | | | OUTPUT METER | | |
| 6 | .1 MFD | High side to Pin 8 (grid) of 14F8. Low side to B-. | 9.1MC (400 ∿ AM Modula-tion) | FM (Center position | Tuning cap. fully closed | Across voice coil | A9 | Adjust for minimum output. This adjustment is critical and should be done very carefully as misalign-ment will cause distortion of FM reception. |

## FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4 | .01 MFD | High side to Pin 1 (grid)of 6BJ6 1st IF Tube (4). Low side to B-. | 9.1MC (Freq. Mod.) | FM (Center posi-tion) | Tuning cap. fully closed | Vertical input to Point (A). Ground to B-. | A10, A11, A12 | Disconnect 2 MFD cap. (19) from Point (A). Adjust A10, A11 & A12 for maxi-mum amplitude, symmetry and coin-cidence of pattern per Fig. 1. |
| 5 | .01 MFD | High side to Pin 8 (grid) of 14F8. Low side to B-. | " | " | " | " | A13, A14 | Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Reconnect 2 MFD. cap. to Point (A). |
| 6 | .01 MFD | " | " | " | " | Vertical in-put to Point (B). Ground to B-. | A9 | Adjust for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2. |

## FM RF ALIGNMENT

The FM Coils may be checked by the use of a tuning wand. If insertion of powdered iron end of wand increases deflection, compress the coil slightly. If insertion of the brass end of wand increases deflection, spread the coil slightly. Correct adjustment is indicated when insertion of either end of the wand causes a decrease in deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 7 | Direct | High side to terminals #1 of FM ant. socket. Low side to chassis. | 10MC (Unmodu-lated) | FM | 4-11/16" from calibration mark. | DC probe to Point (A). Com-mon to B-. | A15 | Adjust for maximum deflection. |
| 8 | " | " | " | " | Tune for max-imum deflec. | " | A16, A17 | Rock tuning cap. and adjust for maximum deflection. |
| 9 | " | " | 98MC (Unmodu-lated) | " | 1-3/8" from calibration mark. | " | FM Osc. Coil (118) FM RF Coil (113) FM Ant. Coil (112) | Adjust FM Osc., RF and Ant. Coils per prealignment instructions. Re-peat Steps 7,8& 9 until no further improvement can be made. |

FIG. 1

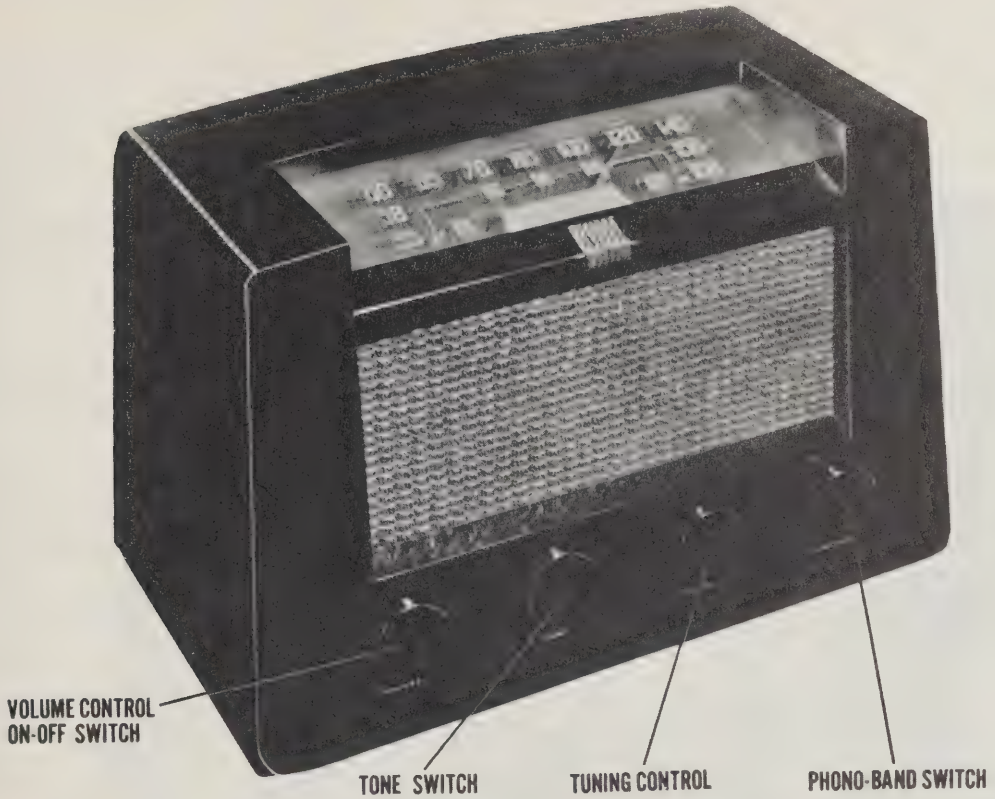
FIG. 2

PHOTOFACT* Folder

*TRADE MARK

# RCA (VICTOR) MODELS 8R71, 8R74, 8R75 (Ch. RC-1060), 8R72, 8R76 (Ch. RC-1060A)

RCA (VICTOR) MODELS 8R71, 8R74, 8R75 (Ch. RC-1060), 8R72, 8R76 (Ch. RC-1060A)




RCA (VICTOR) MODEL 8R71

RCA (VICTOR) MODELS 8R71, 8R74, 8R75 (Ch. RC-1060), 8R72, 8R76 (Ch. RC-1060A)

| | |
|---|---|
| TRADE NAME | RCA (Victor), Models 8R71, 8R74, 8R75 (Ch. RC-1060); 8R72, 8R76 (Ch. RC-1060A) |
| MANUFACTURER | RCA Victor Div., Radio Corp., of America, Camden, N.J. |
| TYPE SET | AC Operated AM-FM Superheterodyne Receiver with Loop Antenna |
| TUBES (SEVEN) | Types, 6J6 Converter, 6BA6 IF Amp., 6AU6 FM 2nd IF Amp., 6AL5 FM Ratio Det., 6AV6 AM Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier. |
| POWER SUPPLY | 110-120 Volts AC RATING .40 Amp. @ 117 Volts AC |
| TUNING RANGE-BROADCAST | 540-1600KC FREQ. MOD. 88-108MC |

## CRITICAL LEAD DRESS

1. Keep leads of cap. (36) short.
2. Dress resistor (46) away from band switch and Pin 5 (grid) of 6J6.
3. The ground lead of pins 1 of 6BA6 and 6AU6 should be down against chassis. Its length is critical.
4. The AVC lead from resistor (61) to band switch should be dressed against chassis and on front apron side of output transformer.
5. Cap. (35) should have short leads and the color coded end of the cap. should go to the FM Osc. Coil. The cap. should be cemented down with polystyrene cement at the same time FM Osc. Coil is cemented.
6. The lead from the high side of the loop ant. should be dressed away from the tubes.
7. Lead from Pin 2 (plate) of 6J6 to first IF Transformer (79) should be dressed against the chassis.
8. Connect cap. (33) directly between the tuning cap. and pin 1 (plate) of 6J6.
9. Make all FM leads as short as possible.
10. Dress lead from Pin 5 (plate) of 6BA6 to 2nd IF Transformer (80) against chassis.
11. Dress resistor (65) near chassis.
12. Dress all AC leads away from volume control.
13. The lead from "FM" terminal of ant. terminal strip to FM Ant. Coil (76) should be run outside of the 1st IF Transformer (79) and away from the 6BA6.
14. The taps on the FM Ant. and FM Osc. Coils are critical. Tap on FM Ant. Coil (76) should be 3/4 turn from the ground end. Tap on FM Osc. Coil should be 2½ turns from the tuning cap.
15. The lead from resistor (57) to band switch should be dressed away from output transformer.
16. Dress caps. (19) & (38) against chassis with the shortest lead length possible.
17. The position of FM Ant. & FM Osc. Coils is critical. FM Ant. Coil should be midway between 6J6 and the 1st IF Transformer. The end of the FM Osc. Coil should be approximately 3/16" from 6J6.

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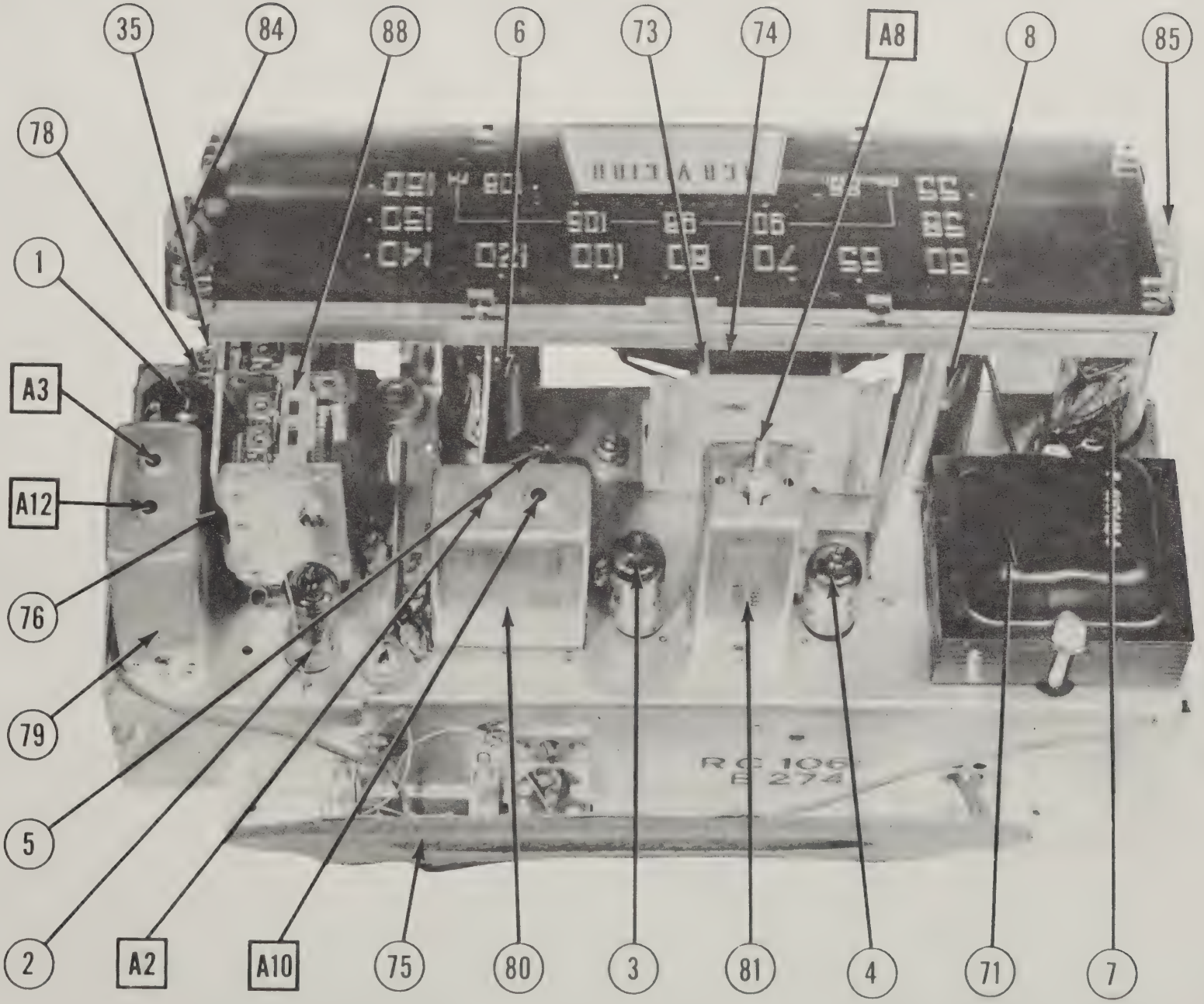
DATE 1/49-#491-20 SET #53-FOLDER #20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A8
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85
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1
A3
A12
76
79
5
2
A2
A10
75
80
3
81
4
71
7

A
B
A1
A4
A5
A6
A7
A9
A11
A13
A14

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: RCA PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 6J6 | 6J6 | 7BF | |
| 2 | IF Amp. | 6BA6 | 6BA6 | 7BK | |
| 3 | FM 2nd IF | 6AU6 | 6AU6 | 7BK | |
| 4 | FM Ratio Det. | 6AL5 | 6AL5 | 6BT | |
| 5 | AM Det.-AVC-AF | 6AV6 | 6AV6 | | |
| 6 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 7 | Rectifier | 6X5GT | 6X5GT | 6S | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: RCA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 8A | 30 | 350 | 73372 | AF64K4A | UP4045C | | EL-323 | ■ Filter |
| B | 30 | 300 | | | BR3045 | | | ▲ " |
| C | 20 | 25 | | | | | | Cathode Bypass |
| 9 | 2 | 50 | 73747 | | BR245 | | | Stabalizing Cap. |
| 10 | .005 | 400 | 72791 | 484-005 | GT6D5 | ST-6-005 | TC-25 | Output Plate Bypass |
| 11 | .01 | 400 | 71925 | 484-01 | GT4S1 | ST-4-01 | TC-11 | Audio Coupling |
| 12 | .01 | 100 | 71923 | 484-01 | GT4S1 | ST-4-01 | TC-11 | " " |
| 13 | .005 | 100 | 71926 | 484-005 | GT6D5 | ST-6-005 | TC-25 | " " |
| 14 | .003 | 400 | 72573 | 484-003 | GT6D3 | ST-6-003 | TC-23 | Tone Compensation |
| 15 | .02 | 100 | 71928 | 484-02 | GT2S2 | ST-4-02 | TC-12 | " " |
| 16 | .1 | 400 | 70617 | 484-.1 | GT4P1 | ST-4-1 | TC-1 | AF Plate Decoupling |
| 17 | .005 | 100 | 71926 | 484-005 | GT6D5 | ST-6-005 | TC-25 | De-emphasis |
| 18 | .005 | 100 | 71926 | 484-005 | GT6D5 | ST-6-005 | TC-25 | RF Bypass |
| 19 | .01 | 100 | 71923 | 484-01 | GT2S1 | ST-4-01 | TC-11 | Fil. Bypass |
| 20 | .005 | 400 | 72791 | 484-005 | GT6D5 | ST-6-005 | TC-25 | 2nd IF Decoupling |
| 21 | .005 | 400 | 72791 | 484-005 | GT6D5 | ST-6-005 | TC-25 | 2nd IF Screen Bypass |
| 22 | .005 | 100 | 71926 | 484-005 | GT6D5 | ST-6-005 | TC-25 | 2nd IF Cathode Bypass |
| 23 | .005 | 400 | 72791 | 484-005 | GT6D5 | ST-6-005 | TC-25 | 1st IF Decoupling |
| 24 | .005 | 400 | 72791 | 484-005 | GT6D5 | ST-6-005 | TC-25 | 1st IF Screen Bypass |
| 25 | .05 | 400 | 72596 | 484-05 | GT4S5 | ST-4-05 | TC-15 | AVC Filter |
| 26 | .005 | 400 | 72791 | 484-005 | GT6D5 | ST-6-005 | TC-25 | Conv. Plate Decoupling |
| 27 | .01 | 400 | 71925 | 484-01 | GT4S1 | ST-4-01 | TC-11 | Osc. Decoupling |
| 28 | 270 | 300 | 47617 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | AF Plate Bypass-Cer. |
| 29 | 330 | 500 | 39640 | 1469-00035 | 5R5T3 | MOS.5-33 | MS-33 | Det.-Diode Load Cap.- Note |
| 30 | 330 | 500 | 39640 | 1469-00035 | 5R5T3 | MOS.5-33 | MS-33 | " |
| 31 | 150 | 300 | 48125 | 1468-00015 | 5W5T15 | MO.5-315 | 1FM-315 | AM Diode RF Filter-Cer. |
| 32 | 22 | 300 | 33101 | 1468-000025 | 5W5Q25 | MO.5-425 | MS-425 | FM Osc. Grid Cap. " |
| 33 | 68 | 300 | 33103 | 1468-000075 | 5W5Q7 | MOS.5-47 | MS-47 | FM Osc. Feedback-Cer. |
| 34 | 2 | 300 | 73866 | | | | | Compensating Cap. " |
| 35 | 56 | 300 | 73867 | | | | | Fixed Padder " |
| 36 | 150 | 300 | 48125 | 1468-00015 | 5W5T15 | MO.5-315 | 1FM-315 | AM Osc. Grid Cap. " |
| 37 | 1500 | 300 | 73748 | 1467-0015 | 1W5D15 | MW.5-215 | 1FM-215 | RF Coupling " |
| 38 | 47 | 300 | 39042 | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | Fil. Bypass " |
| 39 | 150 | 500 | 39632 | 1468-00015 | 5W5T15 | MO.5-315 | 1FM-315 | FM Line Ant. Coup. " |

Note-When either Items #29 or #30 are replaced, replace both with capacitors of equal value.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: RCA PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 40A | 2 Meg. | ½ | 38404 | D13-139X | T-120 | Volume Control tapped @ 400KΩ |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 40A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " |

# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

| ITEM No. | USE | DC RES.: PRI. | DC RES.: SEC. | REPLACEMENT DATA: RCA PART No. | REPLACEMENT DATA: MEISSNER PART No. | |
|---|---|---|---|---|---|---|
| 75 | Loop Ant. | .1Ω | 1.8Ω | 73357 | | |
| 76 | FM Ant.Coil | | 0Ω | 73918 | | |
| 77 | BC Osc. " | 1Ω | 7.2Ω | 73744 | | |
| 78 | FM " " | | 0Ω | 73916 | | |
| 79A | 1st IF-AM | 8Ω | 8Ω | 73745 | | |
| B | 1st IF-FM | .3Ω | .3Ω | | | |
| 80A | 2nd IF-AM | 8Ω | 8.2Ω | 73363 | | |
| B | " " FM | 1.2Ω | .3Ω | | | |
| 81 | FM Ratio Det. | 1.2Ω | .3Ω | 73743 | | |
| 82 | Line Choke | | 0Ω | | | |
| 83 | " " | | 0Ω | | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA: RCA PART No. | REPLACEMENT DATA: | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 84 | Bayonet | 6-8 | 0.25 | Blue | 11891 | | Type #44 |
| 85 | " | 6-8 | 0.25 | " | 11891 | | " " |

## MISCELLANEOUS

| ITEM No. | PART NAME | RCA PART No. | NOTES |
|---|---|---|---|
| 86 | Switch | 73377 | Band |
| 87 | " | 73373 | Tone |
| 88 | 2 Gang Var. Cap. | 73375 | (24-427MMF, 25-198MMF) |
| | Dial Scale | 73365 | |
| | Dial Pointer | 73366 | |
| | Cabinet | 41485 | Model 8R71 |
| | " | 41486 | Model 8R72 |
| | " | 42030 | Model 8R74 |
| | " | 42031 | Model 8R75 |
| | " | 42032 | Model 8R76 |
| | Knob | 73378 | Models 8R71, 8R74, 8R75 |
| | " | 73379 | Model 8R72 |
| | " | 73742 | Model 8R76 |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | RCA PART No. | IRC PART No. | |
| 41 | 3.9 Meg. | ½ | | BTS-3.9 Meg. | Or.-White-Grn. Conv. Grid |
| 42 | 27KΩ | ½ | | BTS-27K | Red-Vi.-Or. Conv. Plate Decoup. |
| 43 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 44 | 22KΩ | ½ | | BTS-22K | Red-Red-Or. Osc. Grid |
| 45 | 18KΩ | 1 | | BTA-18K | Br.-Gray-Or. Osc. Plate Decoup. |
| 46 | 100Ω | ½ | | | Br.-Blk.-Br. Parasitic Suppressor |
| 47 | 68Ω | ½ | | | Blue-Gray-Blk. 1st IF Cathode |
| 48 | 22KΩ | ½ | | BTS-22K | Red-Red-Or. 1st IF Screen |
| 49 | 680Ω | ½ | | BTS-680 | Blue-Gray-Br. 1st IF Decoupling |
| 50 | 56KΩ | ½ | | BTS-56K | Grn.-Blue-Or. Diode Filter |
| 51 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. Diode Load |
| 52 | 120Ω | ½ | | | Br.-Red-Br. 2nd IF Cathode |
| 53 | 15KΩ | ½ | | BTS-15K | Br.-Grn.-Or. 2nd IF Screen |
| 54 | 680Ω | ½ | | BTS-680 | Blue-Gray-Br. 2nd IF Decoup. |
| 55 | 100Ω | ½ | | | Br.-Blk.-Br. RF Filter |
| 56 | 15KΩ | ½ | | BTS-15K | Br.-Grn.-Or. De-emphasis |
| 57 | 10KΩ | ½ | | BTS-10K | Br.-Blk.-Or. Tone Compensation |
| 58 | 1200Ω | ½ | | BTS-1200 | Br.-Red-Red Balancing |
| 59 | 3300Ω | ½ | | BTS-3300 | Or.-Or.-Red " |
| 60 | 39KΩ | ½ | | BTS-39K | Or.-White-Or. Ratio Det. Diode Load |
| 61 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. AVC Network |
| 62 | 22 Meg. | ½ | | BTS-22 Meg. | Red-Red-Blue Bias |
| 63 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Phono Shunt |
| 64 | 27KΩ | ½ | | BTS-27K | Red-Vi.-Or. Tone Comp. |
| 65 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 66 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. AF Plate Load |
| 67 | 56KΩ | ½ | | BTS-56K | Grn.-Blue-Or. AF Plate Decoup. |
| 68 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 69 | 330Ω | ½ | | BW-½-330 | Or.-Or.-Br. Output Cathode |
| 70 | 1500Ω | 7 | 52436 | AB-1500 | Filter |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | RCA PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. |
| 71 | 117V AC @ .4A | 470V CT .058A DC | 6.7V AC @ 3.1A | | 70127 | | T22R02# | P-2951* |

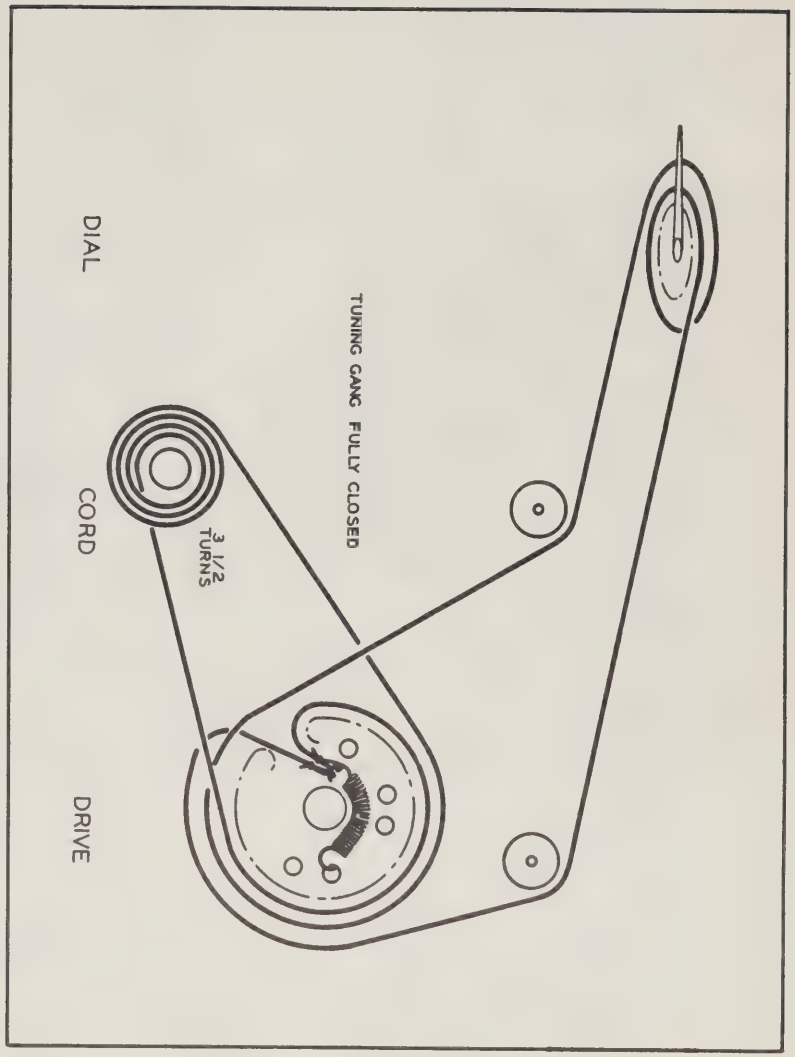
*Add series resistor to reduce plate voltage.
#Drill new mounting holes.

## TRANSFORMER (OUTPUT)

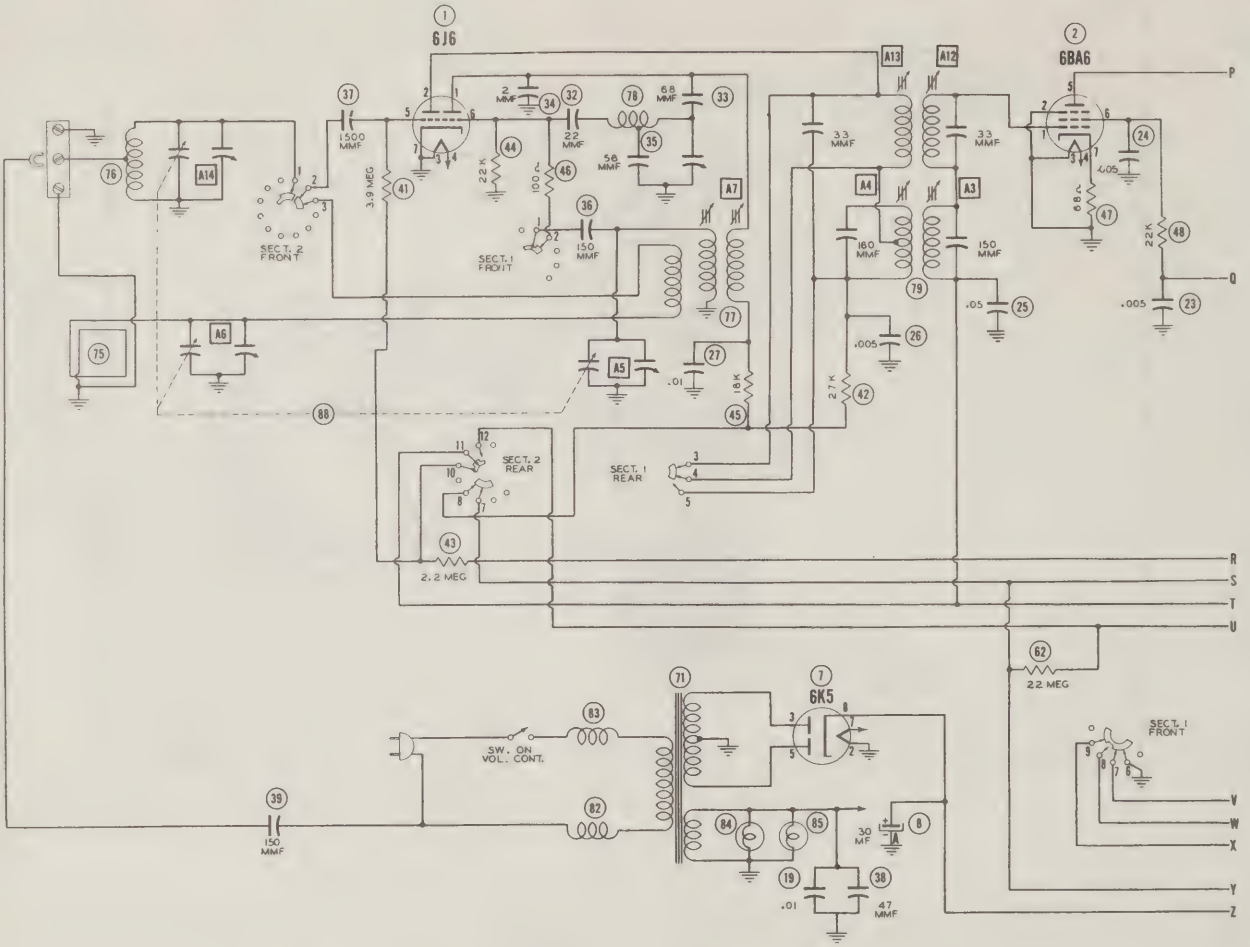
| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | RCA PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 72 | 6800Ω | 3.8Ω | 580Ω tapped @ 13Ω | .6Ω | 73415 | | | A-3032‡ | ‡Drill one new mounting hole. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | JENSEN PART No. | QUAM PART No. | |
| 73 | FIELD PM | VC IMP. 3.8Ω | 92572-2W | ST-105† Mod. P5-X | 5A15† | †Drill and tap magnet frame. |
| 74 | CONE DIA. 4½" | VC DIA. 9/16" | | | | |




DATE 1/49-#491-20 SET #52-FOLDER #20




VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
RADIO-PHONO SWITCH IN RADIO POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1A | 6J6 | 100VDC | 120VDC | 0V. | 6.7VAC | -.8VDC | -9.4VDC§ | 0V. | - |
| ‡ 1B | 6J6 | 60VDC | 190VDC | 0V. | 6.7VAC | -1.8VDC | -8.4VDC§ | 0V. | - |
| 2 | 6BA6 | -.5VDC | 0V. | 6.7VAC | 0V. | 195VDC | 105VDC | .9VDC | - |
| ‡ 3 | 6AU6 | 0V. | 0V. | 6.7VAC | 0V. | 195VDC | 150VDC | 1.2VDC | - |
| ‡ 4 | 6AL5 | 1VDC | -1VDC | 6.7VAC | 0V. | 0V. | 0V. | 0V. | - |
| 5 | 6AV6 | -.4VDC | 0V. | 6.7VAC | 0V. | -.5VDC | -.2VDC | 80VDC | - |
| 6 | 6V6GT | 0V. | 6.7VAC | 240VDC | 205VDC | 0V. | 250VDC | 0V. | 6.3VDC |
| 7 | 6X5GT | 0V. | 6.7VAC | 235VAC | 0V. | 235VAC | 0V. | 0V. | 250VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1A | 6J6 | 220KΩ | 230KΩ | 0Ω | .1Ω | 6.4 Meg. | 22KΩ | 0Ω | - |
| ‡ 1B | 6J6 | 220KΩ | 230KΩ | 0Ω | .1Ω | 6.4 Meg. | 22KΩ | 0Ω | - |
| 2 | 6BA6 | 2.7 Meg. | 0Ω | .1Ω | 0Ω | 200KΩ | 220KΩ | 68Ω | - |
| ‡ 3 | 6AU6 | .3Ω | 0Ω | .1Ω | 0Ω | 200KΩ | 220KΩ | 140Ω | - |
| ‡ 4 | 6AL5 | 3.3KΩ | 40KΩ | .1Ω | 0Ω | INF. | 0Ω | INF. | - |
| 5 | 6AV6 | 10 Meg. | 0Ω | .1Ω | 0Ω | 2.7 Meg. | 270KΩ | 520KΩ | - |
| 6 | 6V6GT | 0Ω | .1Ω | 200KΩ | 200KΩ | 470KΩ | 200KΩ | 0Ω | 330Ω |
| 7 | 6X5GT | 0Ω | .1Ω | 150Ω | INF. | 160Ω | INF. | 0Ω | 200KΩ |

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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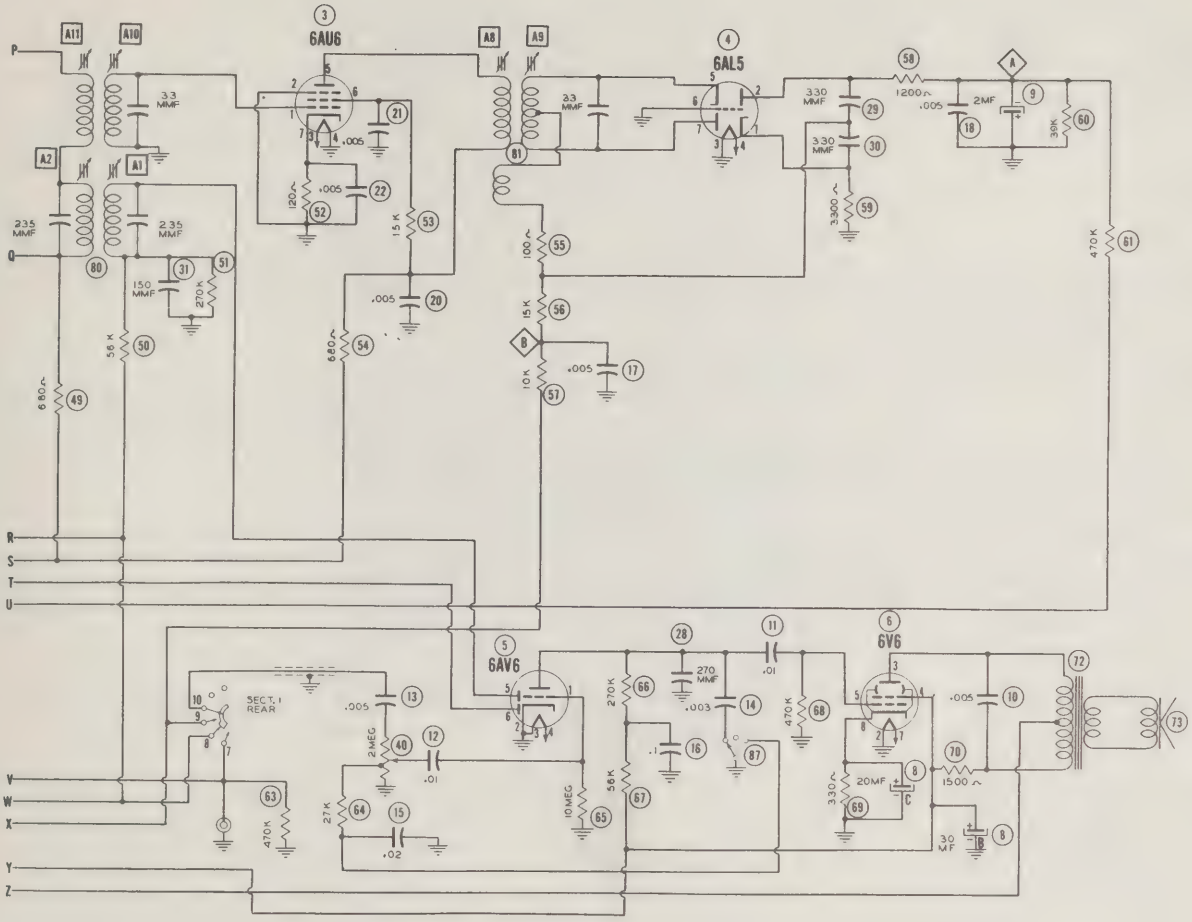


IF = 455 KC AM

IF = 10.7 MC FM

| STAGE GAIN MEASUREMENTS | | |
|---|---|---|
| ANTENNA TO CONVERTER GRID | 40X | 600KC |
| CONVERSION GAIN | 5X | 600KC<br>455KC |
| INPUT IF TRANS. | .9X | 455KC |
| IF TUBE | 170X | 455KC |
| OUTPUT IF TRANS. | .7X | 455KC |
| AUDIO | 40X | 400 ∿ |
| OUTPUT | 35X | 400 ∿ |

**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**


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## ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

AM Alignment should be completed before FM Alignment is attempted.
To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

### AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | .01 MFD. | High side to large AM stator of tuning cap. Low side to chassis. | 455KC | AM (Center position) | Tuning cap. fully closed | Across voice coil. | A1,A2 | Shunt AM primary of 2nd IF Transformer (80A) with 47KΩ carbon resistor and adjust A1 for maximum output. Transfer resistor to secondary of same transformer and adjust A2 for maximum output. Remove resistor. |
| 2 | .01 MFD. | " | " | " | " | " | A3,A4 | Shunt AM primary of 1st IF Transformer (79A) with 47KΩ resistor and adjust A3 for maximum output. Transfer resistor to secondary of same transformer and adjust A4 for maximum output. Remove resistor. |
| 3 | 220MMFD | High side to terminal "A" on ant. terminal strip. Low side to chassis. | 1400KC | " | 1400KC | " | A5 | Adjust for maximum output. |
| 4 | 200MMFD | " | " | " | Tune for maximum output. | " | A6 | " " " " |
| 5 | 200MMFD | " | 600KC | " | " | " | A7 | Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 and 5 until no further improvement can be made. |

### FM IF ALIGNMENT USING AM SIGNAL GENERATOR VTVM & OUTPUT METER

When adjusting A9 for minimum audio output two or more points may be found which lower the audio output. The correct point is indicated when output drops rapidly and is much lower than at any other point.
Attenuate output of signal generator to maintain meter deflection of approximately 2 to 3 volts.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 6 | .01 MFD | High side to Pin 1 (grid) of 6AU6. Low side to chassis. | 10.7MC (30% 400∿ amp. mod.) | FM (Fully clockwise) | Tuning cap. fully closed | DC probe to Point (A). Common to chassis | A8 | Adjust for maximum deflection. |
| | | | | | | **OUTPUT METER** | | |
| 7 | .01 MFD | " | " | " | " | Across voice coil. | A9 | Adjust for minimum output. (see prealignment instructions) |
| | | | | | | **CONNECT VTVM** | | |
| 8 | 300Ω carbon res. | High side to terminal "FM" on ant. terminal strip. Low side to chassis. (Line ant. lead must be disconnected) | " | " | " | DC probe to Point (A). Common to chassis | A10, A11 | Shunt 680Ω carbon resistor across FM primary of 2nd IF Transformer (80B) and adjust A10 for maximum deflection. Transfer resistor to secondary of same transformer and adjust A11 for maximum deflection. Remove resistor. |
| 9 | " | " | " | " | " | " | A12, A13 | Shunt 680Ω resistor across FM primary of 1st IF Transformer (79B) and adjust A12 for maximum deflection. Transfer resistor to secondary of same transformer and adjust A13 for maximum deflection. Remove resistor. Continue with FM-RF Alignment in Step 10. |

### FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 6 | .01 MFD | High side to Pin 1 (grid) of 6BA6. Low side to chassis. | 10.7MC (Freq. Mod.) | FM (Fully clockwise) | Tuning cap. fully closed | Vertical input to Point (A). Ground to chassis. | A8, A10, A11 | Disconnect 2 MFD cap. (9) from Point (A). Adjust A8, A10 & A11 for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. |
| 7 | .01 MFD | High side to terminal "FM" on ant. terminal. strip. Low side to chassis. (Line ant. lead disconnected). | " | " | " | " | A12, A13 | Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Reconnect cap. (9) to Point (A). |
| 8 | .01 MFD | " | " | " | " | Vertical input to Point (B). Ground to chassis. | A9 | Adjust for correct crossover of diagonal lines at horizontal scope sweep line per Fig. 2. Continue with FM-RF Alignment in Step 10. |

### FM RF ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 10 | 300Ω carbon res. | High side to terminal "FM" on ant. terminal strip. Low side to chassis. (line ant. disconnected). | 106MC (Unmodulated) | FM (Fully clockwise) | 106MC | DC probe to Point (A). Common to chassis | A14 & FM Osc. Coil (78) | Turn A14 completely clockwise and adjust spacing of FM Osc. Coil for maximum deflection, then adjust A14 for maximum deflection. |
| 11 | " | " | 90MC (Unmodulated) | " | Tune for maximum deflection. | " | FM Ant. Coil (76) | Rock tuning cap. and adjust spacing of FM ant. coil winding for maximum deflection. Repeat Steps 10 & 11 until no further improvement can be made. |

FIG. 1

FIG. 2

REGAL MODEL 777
BATTERY-LINE OPERATED

REGAL MODEL 777
BATTERY-LINE OPERATED

REGAL MODEL 777

| | |
|---|---|
| **TRADE NAME** | Regal, Model 777 |
| **MANUFACTURER** | Regal Electronics Corp., 605 W. 130th St., New York, N.Y. |
| **TYPE SET** | Three Power Operated Portable Superheterodyne Receiver with Loop Antenna |
| **TUBES** (FOUR) | Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output. |
| POWER SUPPLY | 110-120 Volts AC-DC or 7.5 Volts "A" Supply and 67.5 Volts "B" Supply |
| RATING | .13 Amp. @ 117 Volts AC or 54MA @ 7.5 Volts DC and 17MA @ 67.5 Volts DC |
| **TUNING RANGE—BROADCAST** | 540-1600KC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to large stator of tuning cap. Low side to chassis. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation. |
| | Loop | 1600KC | " | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. |
| | " | 1400KC | Tune for maximum output. | " | A6 | Adjust for maximum output. |



"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 1/49-#491-21 SET #53-FOLDER #21

# PARTS LIST AND DESCRIPTIONS

REGAL MODEL 777

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: REGAL PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 1R5 | 1R5 | 7AT | |
| 2 | IF Amp. | 1T4 | 1T4 | 6AR | |
| 3 | Det.-AVC-AF | 1S5 | 1S5 | 6AU | |
| 4 | Power Output | 3S4 | 3S4 | 7BA | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: REGAL PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 5A | 50 | 150 | | | | | | Filter-Yellow |
| B | 30 | 150 | | | | | | " -Red |
| C | 250 | 15 | | | | | | Fil. Byp.-Blue |
| 6 | .05 | 400 | 50-103 | 484-05 | DT4S5 | ST-4-05 | TC-15 | Line Filter |
| 7 | .002 | 400 | 50-110 | 484-002 | DT6D2 | ST-6-002 | TC-22 | Output Plate Bypass |
| 8 | .002 | 400 | 50-110 | 484-002 | DT6D2 | ST-6-002 | TC-22 | Audio Coupling |
| 9 | .05 | 200 | 50-109 | 484-05 | DT4S5 | ST-4-05 | TC-15 | AF Screen Bypass |
| 10 | .05 | 200 | 50-109 | 484-05 | DT4S5 | ST-4-05 | TC-15 | IF Decoupling |
| 11 | .05 | 200 | 50-109 | 484-05 | DT4S5 | ST-4-05 | TC-15 | AVC Filter |
| 12 | .05 | 200 | 50-109 | 484-05 | DT4S5 | ST-4-05 | TC-15 | Fil. Bypass |
| 13 | 50 | 300 | | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | AF Plate Bypass-Cer. |
| 14 | 5000 | 150 | | 484-005 | DT6D5 | ST-6-005 | TC-25 | Audio Coupling |
| 15 | 250 | 500 | | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Diode RF Filter |
| 16 | 50 | 300 | | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | Osc. Grid Cap.-Cer. |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: REGAL PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 17A | 1 Meg. | ½ | 20-102 | D13-137 | AM-63-Z | Volume Control |
| B | Shaft | | Not Req. | E | KSS-3 | Attach to 17A per instructions |
| C | Switch | | " " | 42 | SW-A2 | " " " " " |

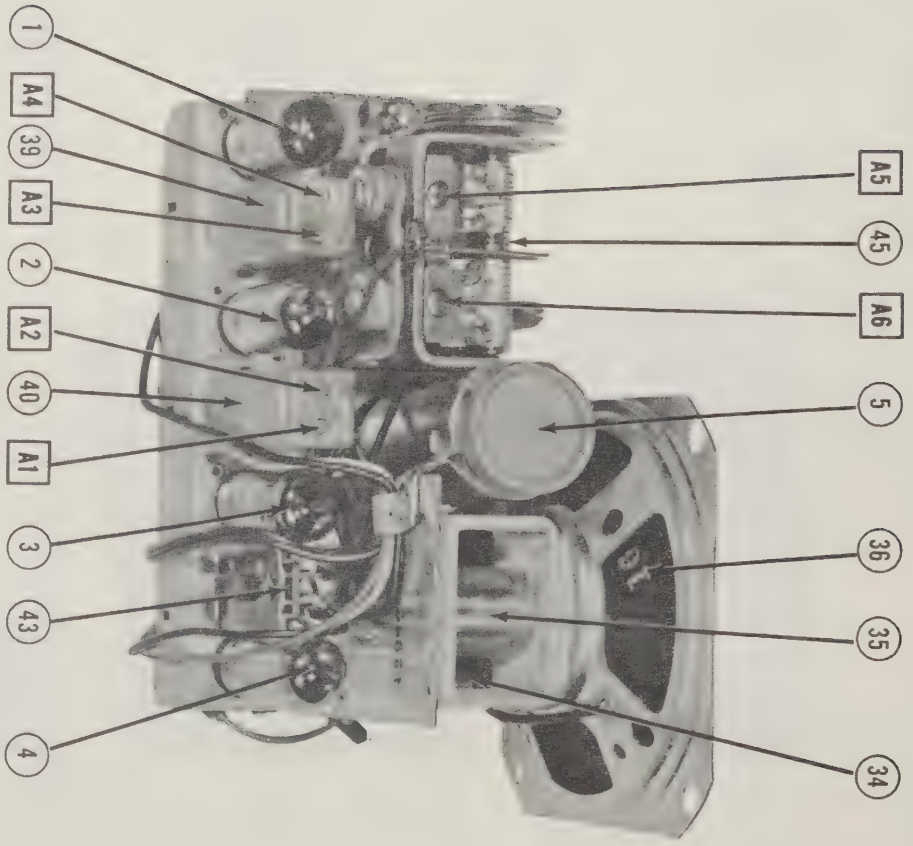
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: REGAL PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 18 | 100KΩ | ½ | 65-125 | BTS-100K | Br.-Blk.-Yl. Oscillator Grid |
| 19 | 6800Ω | 1 | 65-131 | BTA-6800 | Blue-Gray-Red IF Decoupling |
| 20 | 2.2 Meg. | ½ | 65-138 | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 21 | 68KΩ | ½ | | BTS-68K | Blue-Gray-Or. Diode RF Filter |
| 22 | 10 Meg. | ½ | 65-129 | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 23 | 4.7 Meg. | ½ | 65-128 | BTS-4.7 Meg. | Yl.-Vi.-Grn. AF Screen Dropping |
| 24 | 1 Meg. | ½ | 65-126 | BTS-1 Meg. | Br.-Blk.-Grn. AF Plate Load |
| 25 | 2.2 Meg. | ½ | 65-138 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 26 | 270Ω | ½ | 65-123 | BW-½-270 | Red-Vi.-Br. Filter |
| 27 | 560Ω | ½ | 65-133 | BTS-560 | Grn.-Blue-Br. Filament String |
| 28 | 1000Ω | ½ | 65-136 | BTS-1000 | Br.-Blk.-Red " " |
| 29 | 1000Ω | ½ | 65-136 | BTS-1000 | Br.-Blk.-Red " " |
| 30 | 2500Ω | 10 | 70-101 | AB-2500 | Filament Dropping |
| 31 | 2400Ω | 2 | 65-132 | BT-2-2400 | Red-Yl.-Red Filter |
| 32 | 51Ω | 1 | 65-122 | BW-1-47 | Grn.-Br.-Blk. Surge Limiter |
| 33 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. IF Grid |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: REGAL PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 34 | 6000Ω | 3.5Ω | 330Ω | .6Ω | Part of 110-103 | A-3876 | T22S46 | A-2931 | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | REGAL PART No. | JENSEN PART No. | QUAM PART No. | |
| | FIELD | VC IMP. | | ST-113† | | †Fabricate new mounting bracket. |
| 35 | PM | 3.5Ω | 110-103 | Mod. P4-X | 4A07† | |
| | CONE DIA. | VC DIA. | | | | |
| 36 | 4" | 9/16" | | | | |

## R F COILS

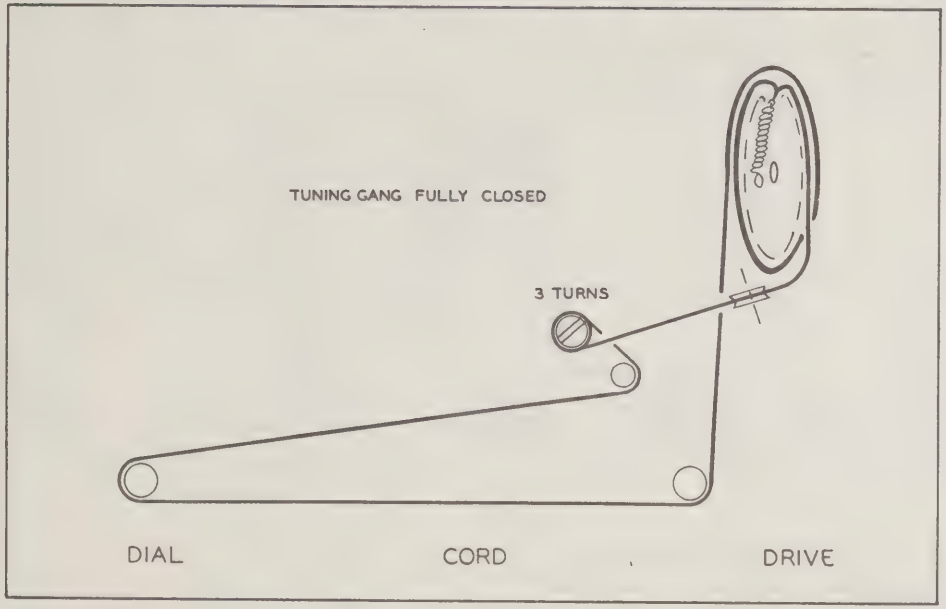
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | REGAL PART No. | MEISSNER PART No. | |
| 37 | Loop Ant. | | 1.6Ω | 30-117 | | |
| 38 | Osc. Coil | 1Ω | 8.8Ω | 30-120 | | |
| 39 | Input IF | 34Ω | 34Ω | 30-114 | 16-6678 | |
| 40 | Output IF | 34Ω | 34Ω | 30-114 | 16-6678 | |

## BATTERIES

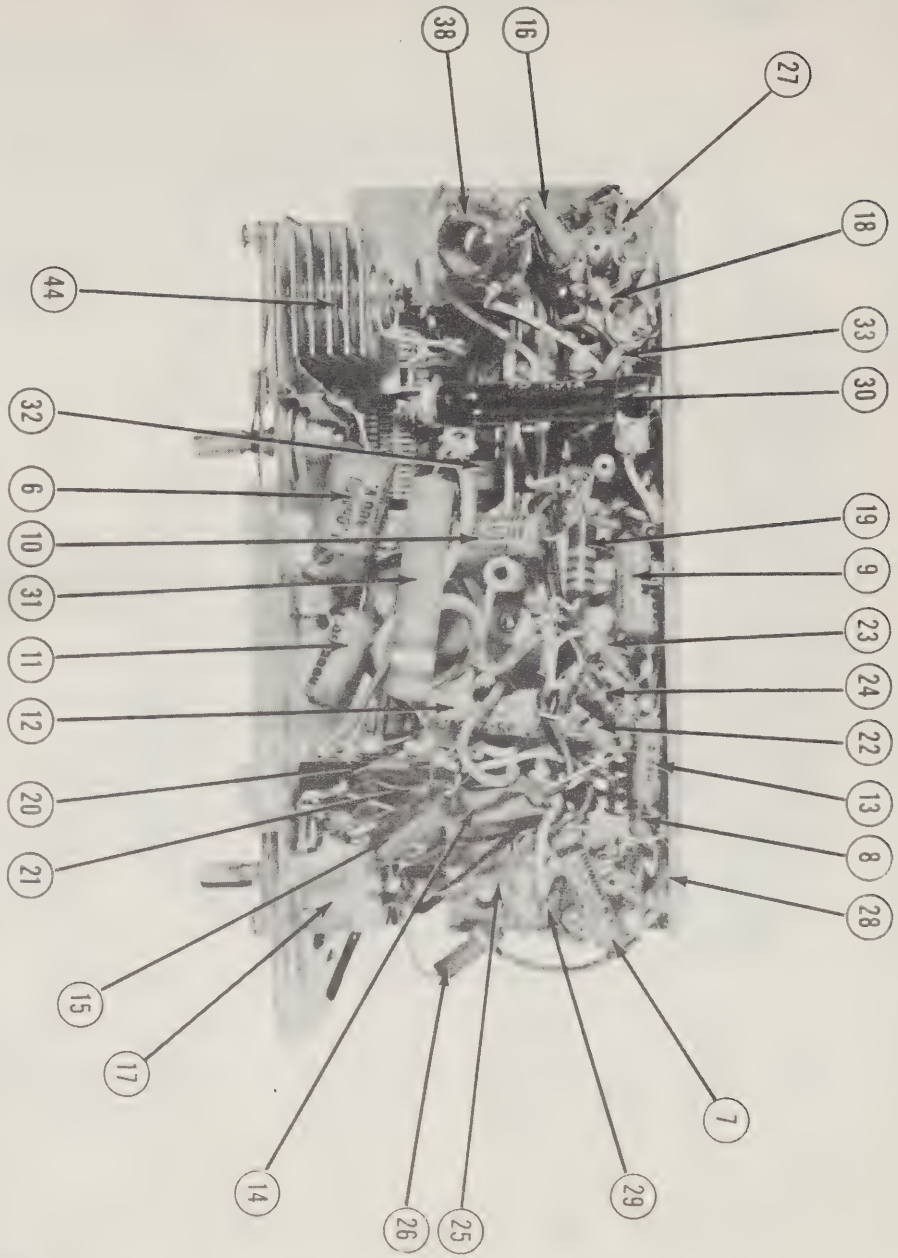
| ITEM No. | VOLTAGE | REGAL PART No. | REPLACEMENT DATA | | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | EVEREADY | | | BURGESS | | | |
| | | | "A" | "B" | "A-B" | "A" | "B" | "A-B" | |
| 41 | 7.5V "A" | | #950 | | | 2R | | | 5 Used in series |
| 42 | 67.5V"B" | | | #467 | | | XX45 | | |

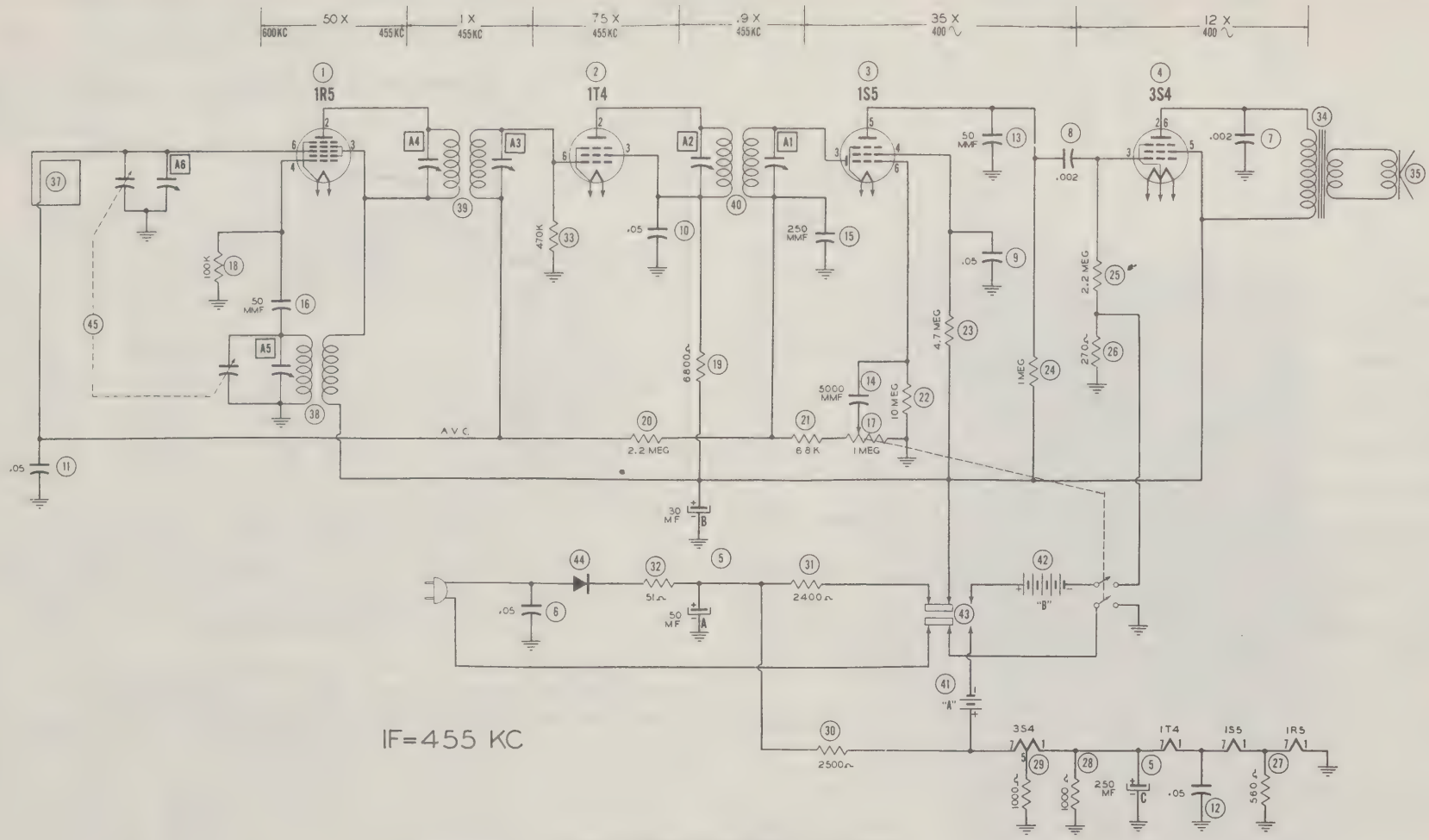
## MISCELLANEOUS

| ITEM No. | PART NAME | REGAL PART No. | NOTES |
|---|---|---|---|
| 43 | Switch | 95-107 | AC/DC-Batt. |
| 44 | Rectifier | | Selenium |
| 45 | 2 Gang Var. Cap. | 40-106 | (32-460MMF, 36-194MMF) |




## CHASSIS—BOTTOM VIEW






VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | 0V. | 75VDC | 75VDC | -9.6VDC§ | 0V. | 0V. | 1.5VDC |
| 2 | 1T4 | 3.0VDC | 66VDC | 66VDC | 0V. | 3.0VDC | 0V. | 4.6VDC |
| 3 | 1S5 | 1.5VDC | 0V. | .2VDC | 13VDC | 16VDC | 0V. | 3.0VDC |
| 4 | 3S4 | 4.6VDC | 71VDC | 0V. | 75VDC | 6VDC | 71VDC | 7.5VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | 0Ω | 5KΩ | 5KΩ | 100KΩ | 0Ω | 400KΩ | * |
| 2 | 1T4 | * | 12KΩ | 12KΩ | 400KΩ | * | 400KΩ | * |
| 3 | 1S5 | * | INF. | 650KΩ | 5 Meg. | 1 Meg. | 10 Meg. | * |
| 4 | 3S4 | * | 5.3KΩ | 2.3Meg. | 5KΩ | * | 5.3KΩ | * |

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE MODEL 8003
(Ch. 132.818-1)

SILVERTONE MODEL 8003
(Ch. 132.818-1)

SILVERTONE MODEL 8003

| | |
|---|---|
| TRADE NAME | Silvertone, Model 8003 (Ch. 132.818-1) |
| SUPPLIER | Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill. |
| TYPE SET | AC-DC Operated Superheterodyne Receiver |
| TUBES (FOUR) | Types, 12SA7GT Converter, 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 105-125 Volts AC-DC |
| TUNING RANGE—BROADCAST | 540-1600KC RATING .23 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .05 MFD | High side to Pin 8 (grid) of 12SA7GT. Low side to B-. | 455KC | Tuning cap. fully closed | Across voice coil | A1,A2 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 2 | 50 MMFD | High side to junction of ant. hank and antenna coil. Low side to B-. | 1400KC | Tune for maximum output. | " | A3 | Rock tuning cap. and adjust for maximum output. |
| 3 | 50 MMFD | " | 600KC | " | " | A4 | Bend plates of rear rotor of tuning cap. for maximum output Repeat Steps 2 and 3 until no further improvement can be made. |

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DATE 1/49-#491-22 SET #53-FOLDER #22

# PARTS LIST AND DESCRIPTIONS

SILVERTONE MODEL 8003

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | SILVERTONE PART No. | STANDARD REPLACEMENT | | |
| 1 | Converter | 12SA7GT | 12SA7GT | 8AD | |
| 2 | 2nd Det.-AVC-AF | 12SQ7GT | 12SQ7GT | 8Q | |
| 3 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 4 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | SILVERTONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | |
| 5A | 40 | 150 | N19176 | PRSA-40302 | EDL4215C | DSB-303 | TA-305 | Filter-Red |
| B | 20 | 150 | | | | | | " -Blue |
| C | 20 | 25 | | | | | | Cathode Bypass-Green |
| 6 | .05 | 400 | | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Filter |
| 7 | .05 | 400 | | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Isolation |
| 8 | .01 | 400 | | 484-01 | GT4S1 | ST-4-01 | TC-11 | Output Plate Bypass |
| 9 | .002 | 600 | | 684-002 | GT6D2 | ST-6-002 | TC-22 | Audio Coupling |
| 10 | .002 | 600 | | 684-002 | GT6D2 | ST-6-002 | TC-22 | " " |
| 11 | .05 | 200 | | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 12 | 100 | 500 | | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | AF Plate Bypass |
| 13 | 100 | 500 | | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Diode RF Filter |
| 14 | 50 | 500 | | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | Osc. Grid Cap. |
| 15 | 14 | 500 | | 1468-00001 | 5W5Q1 | MO.5-41 | MS-41 | Ant. Coupling |
| 16 | 14 | 500 | | | | | | Fixed Trimmer |

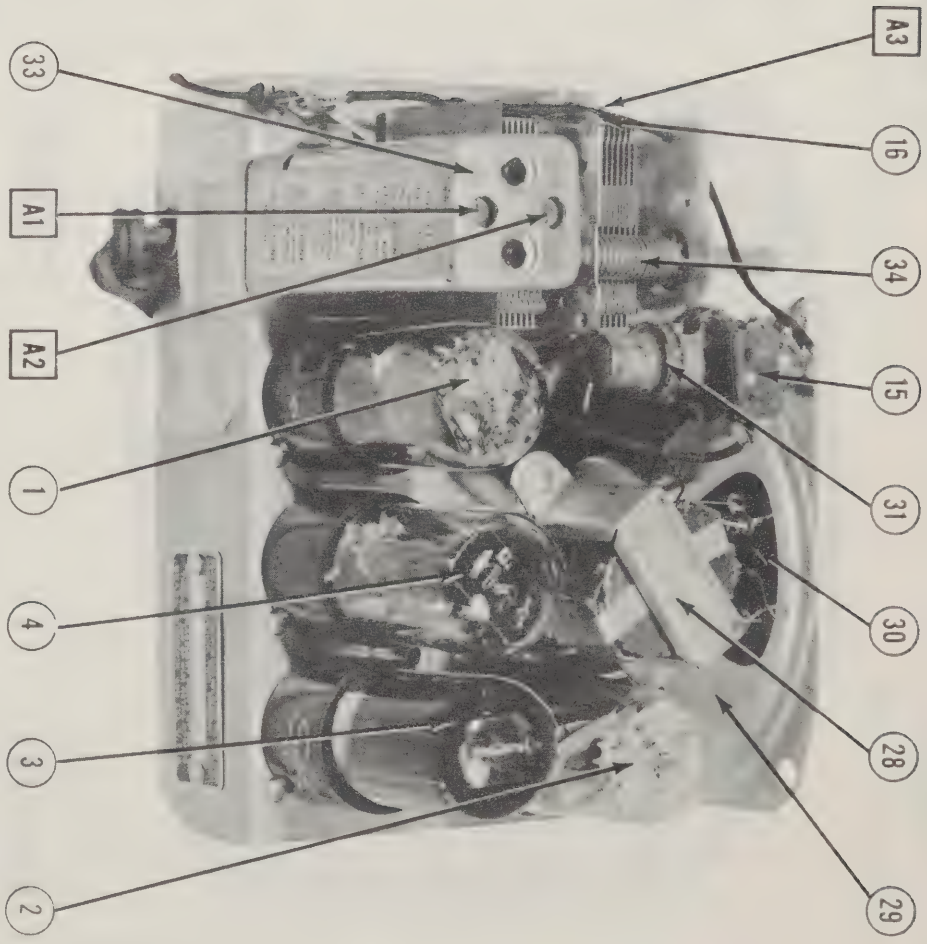
## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SILVERTONE PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 17A | 2 Meg. | ½ | N18587 | D13-139 | M-66-Z | Volume Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 17A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SILVERTONE PART No. | IRC PART No. | |
| 18 | 22KΩ | ½ | | BTS-22K | Red-Red-Or. Osc. Grid |
| 19 | 4.7 Meg. | ½ | | BTS-4.7 Meg. | Yl.-Vi.-Grn. AVC Network |
| 20 | 15 Meg. | ½ | | BTS-15 Meg. | Br.-Grn.-Blue AF Grid |
| 21 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. AF Plate |
| 22 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. Output Grid |
| 23 | 150Ω | ½ | | BW-½-150 | Br.-Grn.-Br. Output Cathode |
| 24 | 2200Ω | 1 | | BTA-2200 | Red-Red-Red Filter |
| 25 | 15Ω | ½ | | | Br.-Grn.-Blk. Surge Limiter |
| 26 | 47Ω | 1 | N-19177 | BW-1-47 | Yl.-Vi.-Blk. Line Dropping |
| 27 | 330KΩ | ½ | | BTS-330K | Or.-Or.-Yl. Line Isolation |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | SILVERTONE PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 28 | 17000Ω | 3.1Ω | 162Ω | .4Ω | N18258 | | | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | SILVERTONE PART No. | JENSEN PART No. | QUAM PART No. | |
| 29A | FIELD RES. | VC IMP. | N19937-1 | | | |
| 30A | CONE DIA. | VC DIA. | | | | |
| 29B | FIELD RES. PM | VC IMP. 3.1Ω | N17209 | | 4A07 | |
| 30B | CONE DIA. 4" | VC DIA. 9/16" | | | | |

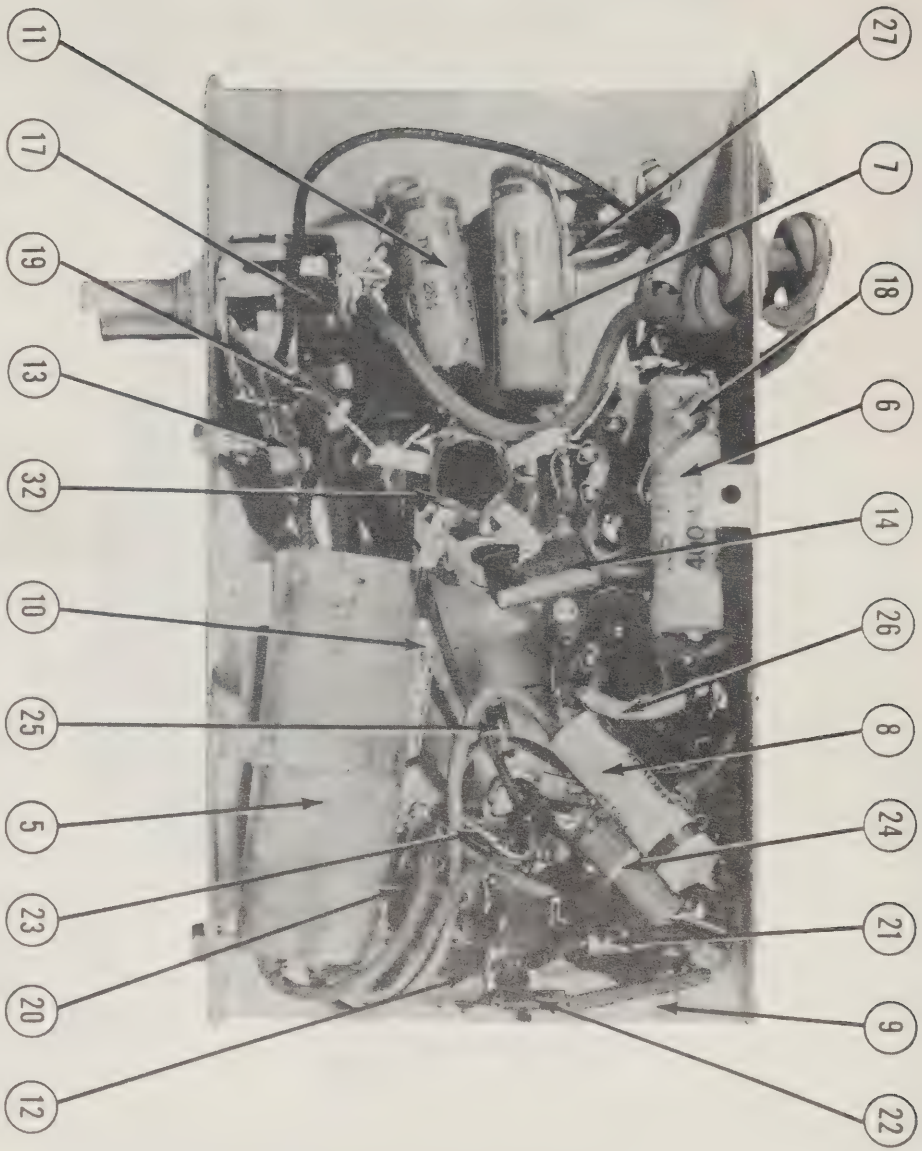
## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| | | PRI. | SEC. | SILVERTONE PART No. | MEISSNER PART No. |
| 31 | Ant.Coil | 34Ω | 2.5Ω | N18255 | 14-1056 |
| 32 | Osc. Coil | .9Ω | 6.3Ω | N18256 | |
| 33 | IF Trans. | 18Ω | 18Ω | N19649 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| 34 | 2 Gang Var. Cap. | N17115 | (14-371MMF, 19-182MMF) |
| | Cabinet | N19936-2 | |
| | Knob | N19120-1 | Tuning |
| | " | N18673 | Volume |

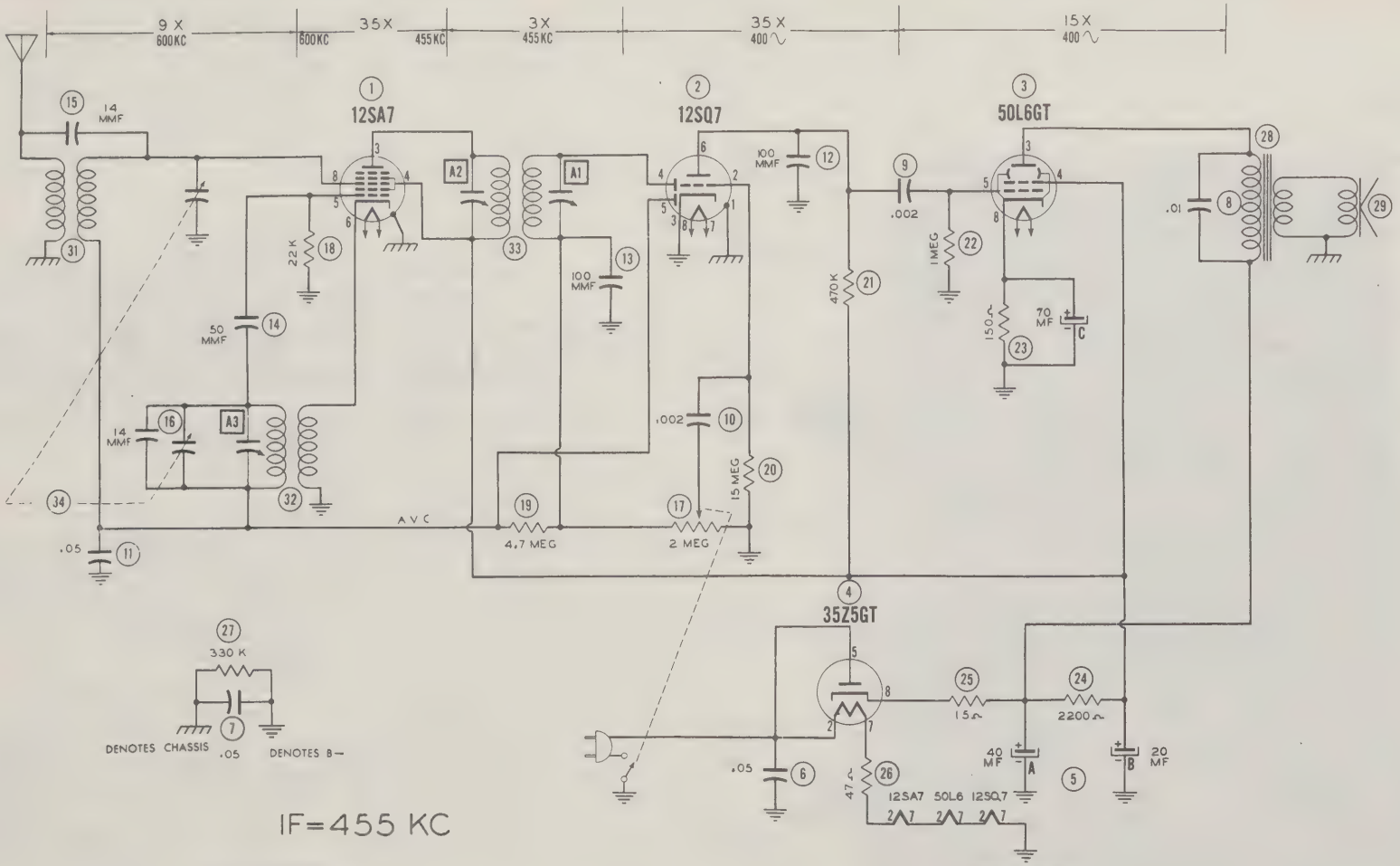
# CHASSIS—BOTTOM VIEW








SILVERTONE MODEL 8003




IF=455 KC

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 0V. | 75VAC | 100VDC | 100VDC | -11.2VDC§ | 0V. | 60VAC | -.9VDC |
| 2 | 12SQ7GT | 0V. | -.9VDC | 0V. | -.7VDC | -.9VDC | 60VDC | 12VAC | 0V. |
| 3 | 50L6GT | 0V. | 60VAC | 127VDC | 100VDC | 0V. | 0V. | 12VAC | 6VDC |
| 4 | 35Z5GT | 0V. | 117VAC | 110VAC | 75VAC | 117VAC | 133VDC | 85VAC | 133VDC |

§TAKEN WITH VACUUM TUBE VOLTMETER.
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 330KΩ | 80Ω | 60KΩ | 60KΩ | 22KΩ | .9Ω | 65Ω | 6.7 Meg. |
| 2 | 12SQ7GT | 330KΩ | 15 Meg. | 0Ω | 2 Meg. | 6.7 Meg. | 520KΩ | 13Ω | 0Ω |
| 3 | 50L6GT | INF. | 65Ω | 60KΩ | 60KΩ | 1 Meg. | INF. | 13Ω | 150Ω |
| 4 | 35Z5GT | INF. | 160Ω | 150Ω | 80Ω | 160Ω | 60KΩ | 125Ω | 60KΩ |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SONORA MODEL 102
BATTERY-LINE OPERATED

SONORA MODEL 102
BATTERY-LINE OPERATED

SONORA MODEL 102

| | |
|---|---|
| **TRADE NAME** | Sonora, Model 102 |
| **MANUFACTURER** | Sonora Radio & Tele. Corp., 325 N. Hoyne Ave., Chicago, Ill. |
| **TYPE SET** | Three Power Operated Portable Superheterodyne Receiver with Loop Antenna |
| **TUBES** (FIVE) | Types, 1R5 Converter, 1U4 IF Amp., 1U5 Det.-AVC-AF, 3V4 Power Output, 117Z3 Rectifier. |
| POWER SUPPLY RATING | 110-120 Volts AC-DC or 4.5 Volts "A" Supply and 67.5 Volts "B" Supply<br>.15 Amp. @ 117 Volts AC or 100MA @ 4.5 Volts DC and 7MA @ 67.5 Volts DC |
| **TUNING RANGE—BROADCAST** | 535-1620KC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to Pin 6 (grid) of 1R5. Low side to B-. | 455KC | Tuning cap. fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF to reduce hum modulation. |
| 2 | | Loop | 1620KC | " | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. |
| 3 | | " | 1400KC | Tune for maximum output. | " | A6 | Adjust for maximum output. |

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# PARTS LIST AND DESCRIPTIONS

SONORA MODEL 102

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: SONORA PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 1R5 | 1R5 | 7AT | |
| 2 | IF Amp. | 1U4 | 1U4 | 6AR | |
| 3 | Det.-AF | 1U5 | 1U5 | 6BW | |
| 4 | Power Output | 3V4 | 3V4 | 6BX | |
| 5 | Rectifier | 117Z3 | 117Z3 | 4BR | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: SONORA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 6A | 50 | 150 | N6841 | AF886D4A* | UP7DJ63 | DY-401* | EL443* | ● Filter |
| B | 30 | 150 | | | | | | ▲ " |
| C | 30 | 150 | | | | | | ■ " |
| D | 100 | 25 | | PRS25/100 | | M-100-25 | UHC-10Ω | Fil. Bypass |
| 7 | .05 | 400 | N-1346 | 484-05 | DT4S5 | ST-4-05 | TC-15 | Line Filter |
| 8 | .05 | 200 | N-1345 | 484-05 | DT2S5 | ST-4-05 | 72P1 | Line Isolation |
| 9 | .002 | 600 | N-6377 | 684-002 | DT6D2 | ST-6-002 | TC-22 | Output Plate Bypass |
| 10 | .005 | 600 | N-4894 | 684-005 | DT6D5 | ST-6-005 | TC-25 | Audio Coupling |
| 11 | .005 | 600 | N-4894 | 684-005 | DT6D5 | ST-6-005 | TC-25 | " " |
| 12 | .01 | 400 | N-1344 | 484-01 | DT4S1 | ST-4-01 | TC-11 | AF Screen Bypass |
| 13 | .01 | 400 | N-1344 | 484-01 | DT4S1 | ST-4-01 | TC-11 | IF Grid Filter |
| 14 | .05 | 200 | N-1345 | 484-05 | DT2S5 | ST-4-05 | TC-15 | Osc. Decoupling |
| 15 | .1 | 200 | N-1351 | 484-.1 | DT2P1 | ST-2-1 | TC-1 | Fil. Bypass |
| 16 | .05 | 200 | N-1345 | 484-05 | DT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 17 | 100 | 300 | N-6015 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | AF Plate Bypass-Cer. |
| 18 | 100 | 300 | N-6015 | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Diode Filter |

*Omit bypass section.

## CONTROLS

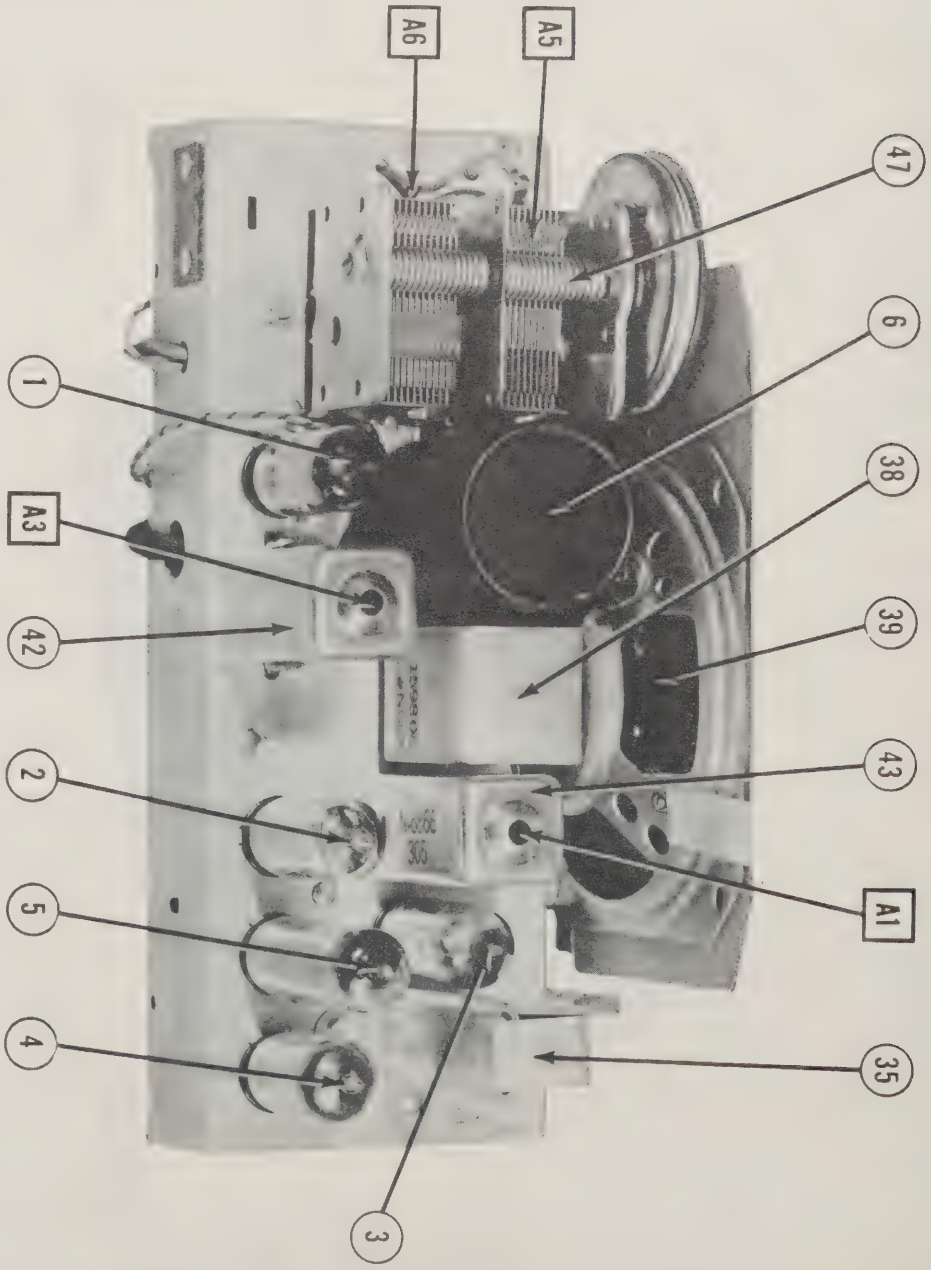
| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: SONORA PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 19A | 1 Meg. | ½ | N-6779 | D13-137† | AM-63-Z† | Volume Control |
| B | Shaft | | Not Req. | E | KSS-3 | Attach to 19A per instructions |
| C | Switch | | " " | 42 | SW-A2 | " " " " " |

†Install a 47KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Controls viewed from shaft side, terminals down).

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: SONORA PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 20 | 100KΩ | ½ | N-2973 | BTS-100K | Br.-Blk.-Yl. Oscillator Grid |
| 21 | 12KΩ | ½ | N-5690 | BTS-12K | Br.-Red-Or. Converter Screen Decoupling |
| 22 | 4.7 Meg. | ½ | N-4061 | BTS-4.7 Meg. | Yl.-Vi.-Grn. AVC Network |
| 23 | 6.8 Meg. | ½ | N-4028 | BTS-6.8 Meg | Blue-Gray-Grn. IF Grid |
| 24 | 6.8 Meg. | ½ | N-4028 | BTS-6.8 Meg. | Blue-Gray-Grn. AF Grid |
| 25 | 3.9 Meg. | ½ | N-5473 | BTS-3.9 Meg. | Or.-White-Grn. AF Screen Dropping |
| 26 | 1 Meg. | ½ | N-2976 | BTS-1 Meg. | Br.-Blk.-Grn. AF Plate Load |
| 27 | 2.2 Meg. | ½ | N-4277 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 28 | 1200Ω | ½ | N-6793 | BTS-1200 | Br.-Red-Red Filament String |
| 29 | 470Ω | ½ | N-4066 | BTS-470 | Yl.-Vi.-Br. " " |
| 30 | 27Ω | ½ | N-6792 | BW-½-27 | Red-Vi.-Blk. " " |
| 31 | 1200Ω | ½ | N-6793 | BTS-1200 | Br.-Red-Red " " |
| 32 | 220KΩ | ½ | N-4026 | BTS-220K | Red-Red-Yl. Line Isolation |
| 33 | 270Ω | ½ | N-4121 | BW-½-270 | Red-Vi.-Br. Bias |
| 34 | 1200Ω | ½ | N-6793 | BTS-1200 | Br.-Red-Red Filter |
| 35A | 960Ω | 5 | N-6842 | AB-1000 | Filament Dropping |
| B | 960Ω | 5 | | AB-1000 | " " |
| 36 | 68Ω | 1.5 | N-6113 | | Surge Limiter |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | SONORA PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 37 | 6000Ω | 3.4Ω | 485Ω | .6Ω | N-6791 | A-3878 | T22S47 | A-2930 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | SONORA PART No. | JENSEN PART No. | QUAM PART No. | |
| 38 | FIELD<br>PM | VC IMP.<br>3.4Ω | N-6681 | ST-113<br>Mod. P4-X | 4A07 | |
| 39 | CONE DIA.<br>4" | VC DIA.<br>9/16" | | | | |

## R F COILS

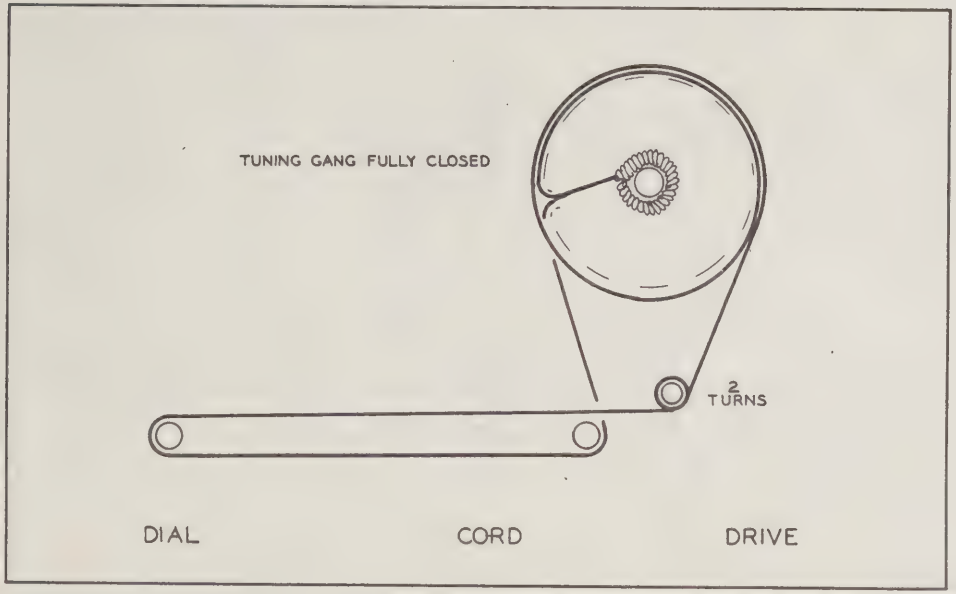
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | SONORA PART No. | MEISSNER PART No. | |
| 40 | Loop Ant. | | 1.2Ω | N-6781 | | ‡Add 50 MMF from high side of tuning cap. to osc. grid. |
| 41 | Osc. Coil | 2.5Ω | 7Ω | N-6003 | 14-1060‡ | |
| 42 | Input IF | 21Ω | 21Ω | N-6865 | 16-6668 | |
| 43 | Output IF | 20Ω | 20.2Ω | N-6866 | 16-6669 | |

## BATTERIES

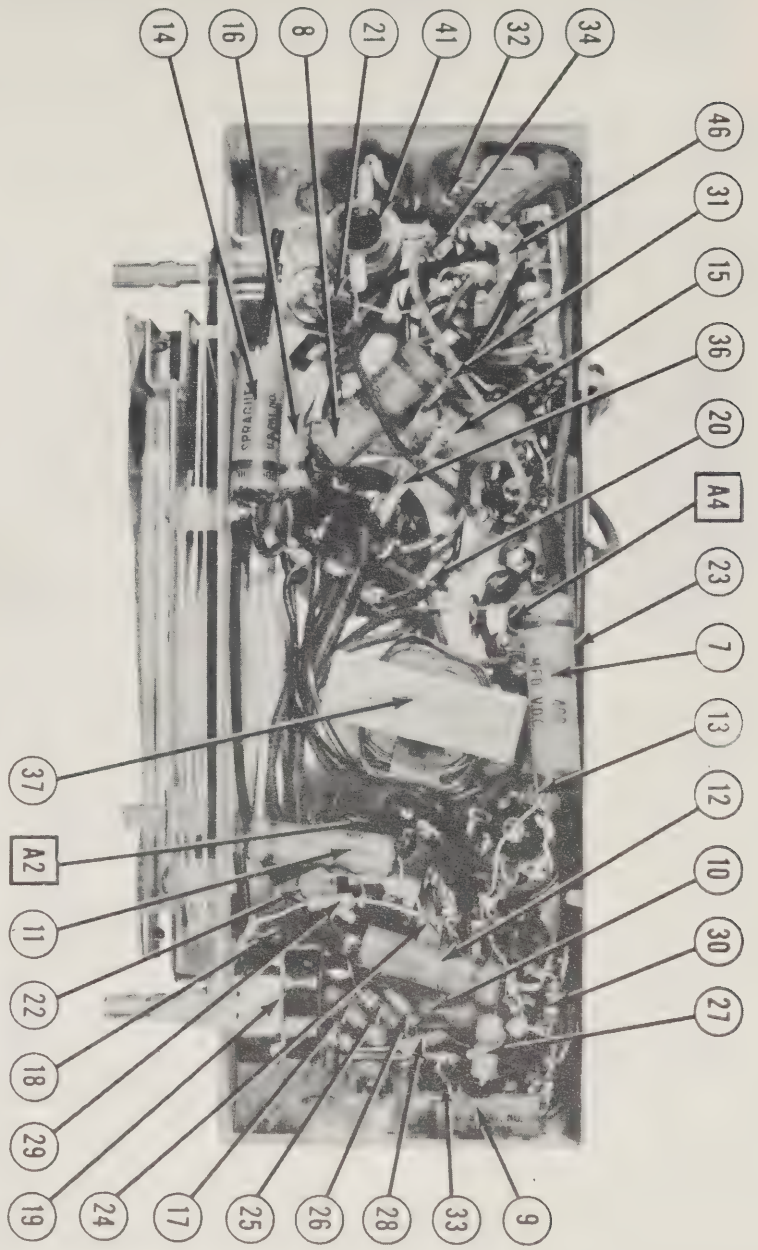
| ITEM No. | VOLTAGE | SONORA PART No. | REPLACEMENT DATA | | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | EVEREADY | | | BURGESS | | | |
| | | | "A" | "B" | "A-B" | "A" | "B" | "A-B" | |
| 44 | 4.5V "A" | | 746 | | | G3 | | | |
| 45 | 67.5V"B" | | | 467 | | | XX45 | | |

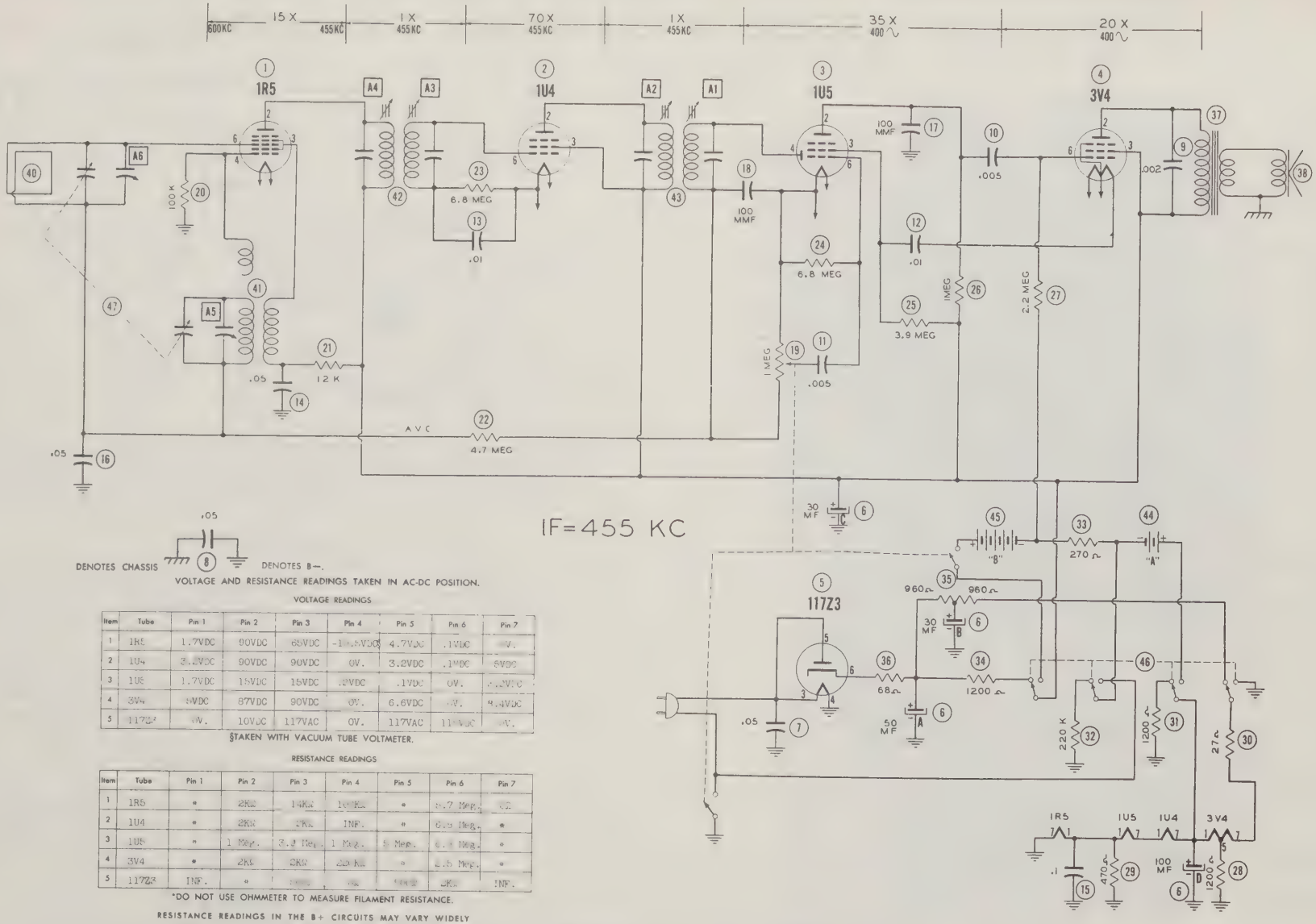
## MISCELLANEOUS

| ITEM No. | PART NAME | SONORA PART No. | NOTES |
|---|---|---|---|
| 46 | Switch | | AC/DC-Batt. |
| 47 | 2 Gang Var. Cap. | N-5936 | (27-372MMF, 35-194MMF) |




# CHASSIS—BOTTOM VIEW



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DENOTES CHASSIS .05 DENOTES B−.

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | 1.7VDC | 90VDC | 65VDC | -1.5VDC | 4.7VDC | .1VDC | 0V. |
| 2 | 1U4 | 3.2VDC | 90VDC | 90VDC | 0V. | 3.2VDC | .1VDC | 6VDC |
| 3 | 1U5 | 1.7VDC | 15VDC | 15VDC | .2VDC | .1VDC | 0V. | 1.2VDC |
| 4 | 3V4 | 0VDC | 87VDC | 90VDC | 0V. | 6.6VDC | 0V. | 9.4VDC |
| 5 | 117Z3 | 0V. | 10VDC | 117VAC | 0V. | 117VAC | 117VAC | 0V. |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | * | 2KΩ | 14KΩ | 10KΩ | * | 0.7 Meg. | 0Ω |
| 2 | 1U4 | * | 2KΩ | 2KΩ | INF. | * | 0.5 Meg. | * |
| 3 | 1U5 | * | 1 Meg. | 3.2 Meg. | 1 Meg. | 5 Meg. | 0.1 Meg. | * |
| 4 | 3V4 | * | 2KΩ | 2KΩ | 250Ω | * | 2.5 Meg. | * |
| 5 | 117Z3 | INF. | * | 50Ω | 50Ω | 50Ω | 2KΩ | INF. |

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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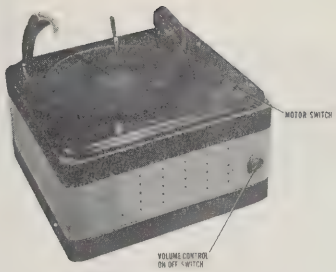
491-23

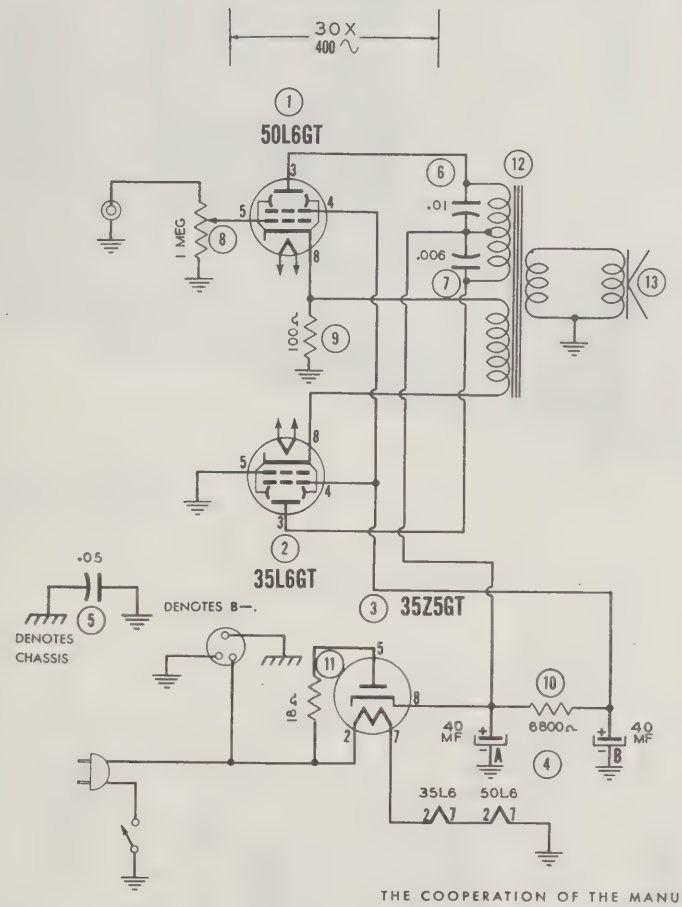
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to B-.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.




TELE-TONE MODEL 183

| | |
|---|---|
| **TRADE NAME** | Tele-Tone, Model 183 |
| **MANUFACTURER** | Tele-Tone Radio Corp., 540 W. 58th St., New York, N.Y. |
| **TYPE SET** | AC Operated Phono Player with 3 Tube Amplifier |
| **TUBES** (THREE) | Types, 50L6GT Power Output, 35L6GT Power Output, 35Z5GT Rectifier |
| **POWER SUPPLY** | 110-120 Volts AC RATING .19 Amp. @ 117 Volts AC |




| Pin No. | 50L6GT Volt. | 50L6GT Res. | 35L6GT Volt. | 35L6GT Res. |
|---|---|---|---|---|
| 1 | 0V. | INF. | 0V. | INF. |
| 2 | 50VAC | 48Ω | 85VAC | 80Ω |
| 3 | 120VDC | 100KΩ | 120VDC | 100KΩ |
| 4 | 100VDC | 110KΩ | 100VDC | 110KΩ |
| 5 | 0V. | 500KΩ | 0V. | 0Ω |
| 6 | 0V. | INF. | 0V. | INF. |
| 7 | 0V. | 0Ω | 50VAC | 48Ω |
| 8 | 7.9VDC | 100Ω | 7.9VDC | 100Ω |

| Pin No. | 35Z5GT Volt. | 35Z5GT Res. |
|---|---|---|
| 1 | 0V. | INF. |
| 2 | 117VAC | 115Ω |
| 3 | 113VAC | 110Ω |
| 4 | 0V. | INF. |
| 5 | 115VAC | 133Ω |
| 6 | 0V. | 0Ω |
| 7 | 85VAC | 80Ω |
| 8 | 125VDC | 100KΩ |

VOLUME CONTROL AT MINIMUM.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at minimum, no signal applied for voltage measurements.

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DATE 1/29-#491-24 SET #53-FOLDER #24

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: TELE-TONE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 2 | " " | 35L6GT | 35L6GT | 7AC | |
| 3 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: TELE-TONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 4A | 40 | 150 | | PRSA150/40-40 | EDL4415 | DSB-2x40-150 | TA440 | Filter-Green |
| B | 40 | 150 | | | | | | " -Red |
| 5 | .05 | 400 | | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Isolation |
| 6 | .01 | 400 | | 484-01 | GT4S1 | ST-4-01 | TC-11 | Output Plate Bypass |
| 7 | .006 | 300 | | 484-006 | GT6D6 | ST-6-006 | TC-26 | " " " |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: TELE-TONE PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 8 | 1 Meg. | ½ | | | | |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: TELE-TONE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 9 | 100Ω | 1 | | BW-1-100 | Br.-Blk.-Br. Output Cathode |
| 10 | 6800Ω | ½ | | BTS-6800 | Blue-Gray-Red Filter |
| 11 | 18Ω | ½ | | BW-½-18 | Br.-Gray-Blk. Rectifier Ballast |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: TELE-TONE PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 8200Ω CT | 3.4Ω SEC. 1 | 278Ω CT | .7Ω SEC. 1 | TR-15 | | | | |
| | | SEC. 2 | | SEC. 2 .6Ω | | | | | |

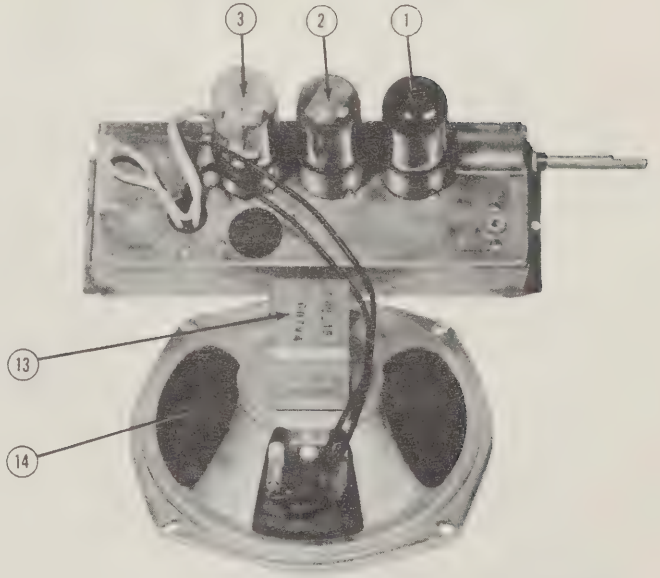
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: TELE-TONE PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-108 | | |
| 13 | PM | 3.4Ω | SP62-15 | Mod. P6-X | 6A15 | |
| | CONE DIA. | VC DIA. | | | | |
| 14 | 5-3/4" | 9/16" | | | | |

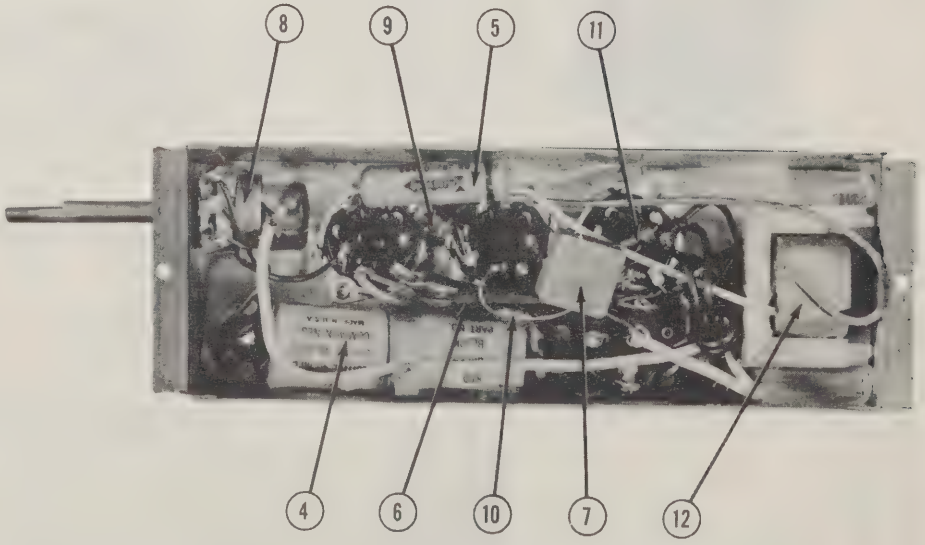
## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA: TELE-TONE PART No. | ASTATIC PART No. | REMARKS |
|---|---|---|---|
| 15 | | L-72 | |

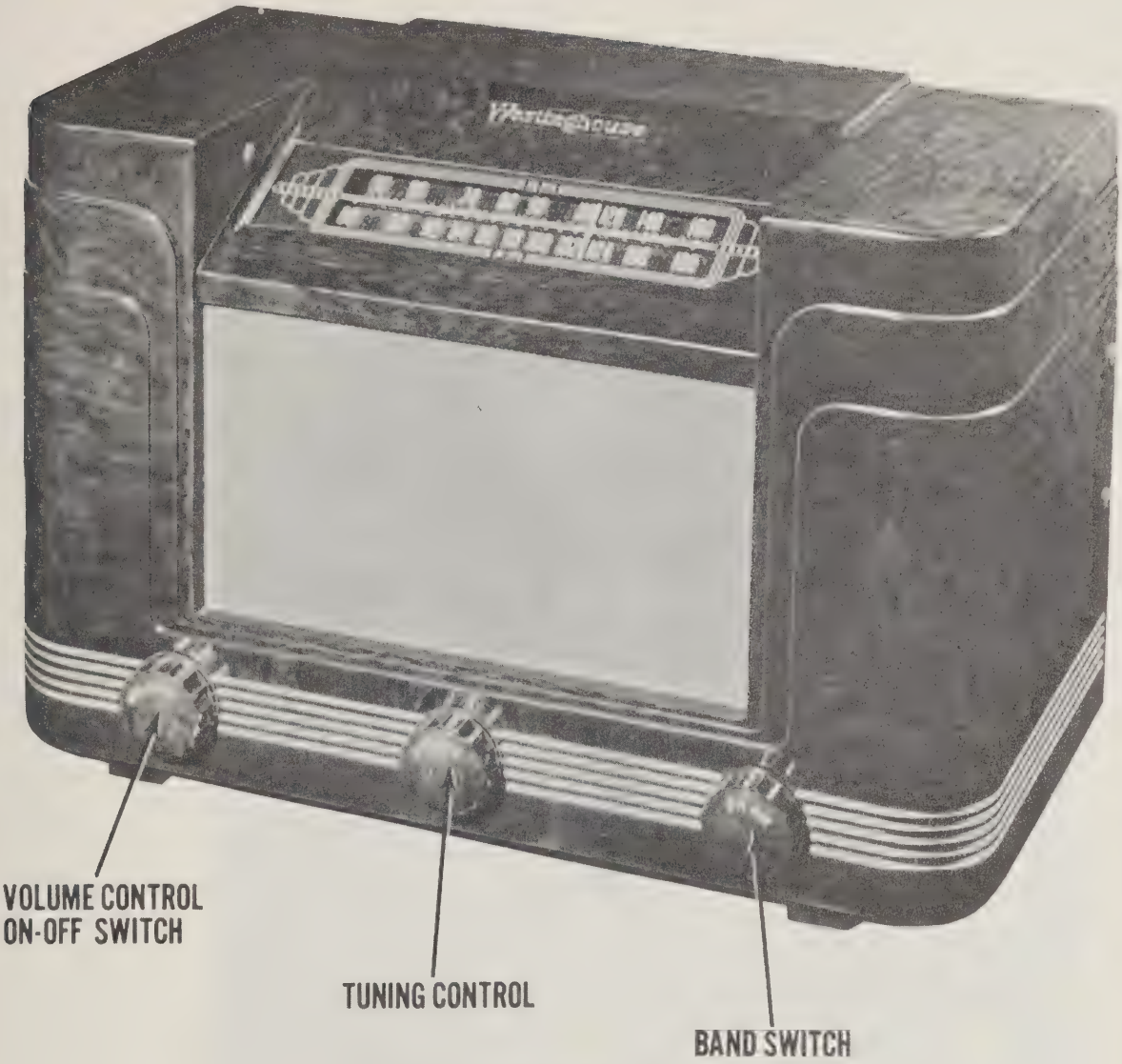
## CHASSIS—TOP VIEW




## CHASSIS—BOTTOM VIEW



WESTINGHOUSE MODEL H-182
(Ch. V-2128), (Ch. V-2128-1)




WESTINGHOUSE MODEL H-182
(Ch. V-2128), (Ch. V-2128-1)

WESTINGHOUSE MODEL H-182

| | | | |
|---|---|---|---|
| TRADE NAME | Westinghouse, Model H-182 (Ch. V-2128), (Ch. V-2128-1) | | |
| MANUFACTURER | Westinghouse Electric Corp., Receiver Div., Sunbury, Pa. | | |
| TYPE SET | AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna | | |
| TUBES (SIX) | Types, 12AT7 Converter, 12BA6 1st IF Amp., 6BJ6 FM 2nd IF Amp., 19T8 Det.-AVC-AF, 35B5 Power Output, 35W4 Rectifier. | | |
| POWER SUPPLY | 105-120 Volts AC-DC | RATING | .28 Amp. @ 117 Volts AC |
| TUNING RANGE-BROADCAST | 540-1615KC | FREQ. MOD. | 88-108MC |

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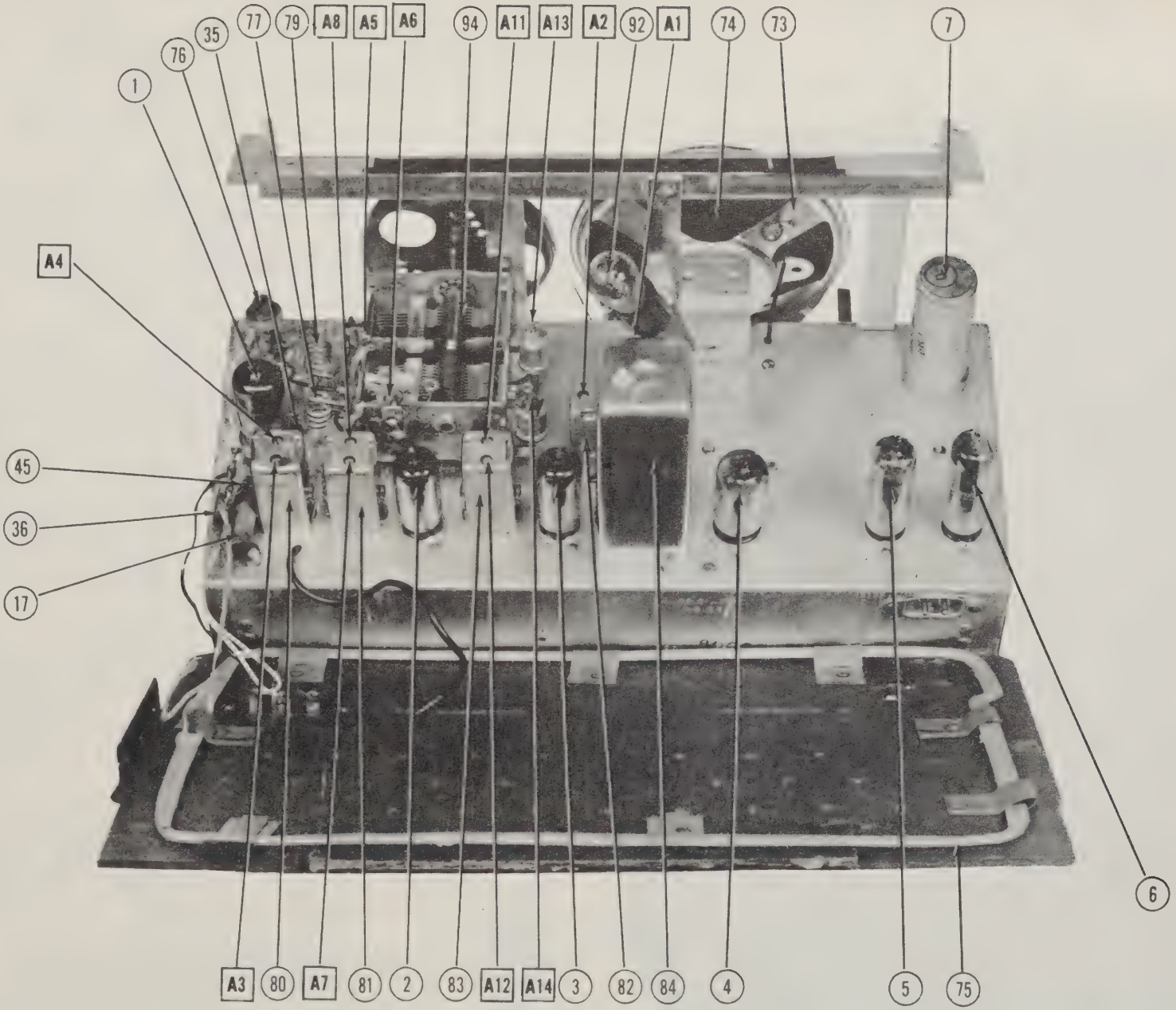
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93
33
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51
31
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# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | WESTINGHOUSE PART No. | STANDARD REPLACEMENT | | |
| 1 | Converter | 12AT7 | 12AT7 | | |
| 2 | 1st IF Amp. | 12BA6 | 12BA6 | 7BK | |
| 3 | FM 2nd IF Amp. | 6BJ6 | 6BJ6 | 7CM | |
| 4 | Det.-AVC-AF | 19T8 | 19T8 | | |
| 5 | Power Output | 35B5 | 35B5 | 7BZ | |
| 6 | Rectifier | 35W4 | 35W4 | 5BQ | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | WESTINGHOUSE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | |
| 7A | 50 | 150 | V-5493 | | UP5515C | DY-307 | EL-352 | ■ Filter |
| B | 50 | 150 | | | | | | ▲ " |
| C | 20 | 25 | | | | | | Cathode Bypass |
| 8 | 4 | 50 | V-4627 | PRS150-4 | BR415 | M-4-450 | UT-41 | Stabalizing Cap. |
| 9 | .05 | 600 | RCP10M6503M | 684-05 | DT6S5 | ST-6-05 | TC-15 | Line Filter |
| 10 | .05 | 400 | RCP10M4503M | 484-05 | DT4S5 | ST-4-05 | TC-15 | Vol. Control Isolation |
| 11 | .01 | 600 | RCP10M6103M | 684-01 | DT6S1 | ST-6-01 | TC-11 | Output Plate Bypass |
| 12 | .03 | 400 | RCP10M4303M | 484-03 | DT4S3 | ST-6-03 | TC-13 | Audio Coupling |
| 13 | .002 | 600 | RCP10M6202M | 684-002 | DT6D2 | ST-6-002 | TC-22 | " " |
| 14 | .1 | 400 | RCP10M4104M | 484-.1 | DT4P1 | ST-4-1 | TC-1 | RF Bypass-Pwr. Supply |
| 15 | .002 | 600 | RCP10M6202M | 684-002 | DT6D2 | ST-6-002 | TC-22 | De-emphasis |
| 16 | .002 | 600 | RCP10M6202M | 684-002 | DT6D2 | ST-6-002 | TC-22 | Audio Coupling |
| 17 | .001 | 600 | RCP10M6102M | 684-001 | DT6D1 | ST-6-001 | TC-21 | Ext. Ant. Coupling |
| 18 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Fil. Bypass Cer. |
| 19 | 470 | 300 | R5CC21ZY471M | 1468-0005 | 5W5T5 | MO.5-35 | 1FM-35 | AF Plate Bypass " |
| 20 | 100 | 500 | RCM20A101K | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | Diode Load Cap. |
| 21 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 2nd IF Decoupling " |
| 22 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Fil. Bypass " |
| 23 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | " " " |
| 24 | 1000 | 300 | R5CC26ZY102M | 1468-001 | 1W5D1 | MW.5-21 | 1FM-21 | " " " |
| 25 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | " " " |
| 26 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | RF Bypass Pwr. Supply " |
| 27 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | 1st IF Decoupling " |
| 28 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | AVC Filter " |
| 29 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | Conv. Plate Decoup. " |
| 30 | 1000 | 300 | R5CC26ZY102M | 1468-001 | 1W5D1 | MW.5-21 | 1FM-21 | Osc. Feedback " |
| 31 | 47 | 300 | R1CC21SL470K | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | Osc. Grid Cap. " |
| 32 | 1 | 300 | V-5658-1 | 1468-000001 | | | | Osc. Coupling " |
| 33 | 1000 | 300 | R5CC26ZY102M | 1468-001 | 1W5D1 | MW.5-21 | 1FM-21 | Conv. Cath. Byp. " |
| 34 | 470 | 300 | R5CC21ZY471M | 1468-0005 | 5W5T5 | MO.5-35 | 1FM-35 | RF Coupling " |
| 35 | 2.2 | 300 | V-5658-2 | | | | | Dipole Coupling " |
| 36 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | FM Dipole Isolation " |
| 37 | 100 | 500 | RCM20A101K | 1468-0001 | 5W5T1 | MO.5-31 | 1FM-31 | FM Line Ant. Coup. " |
| 38 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | AVC Filter-Cer.-Note |
| 39 | 5000 | 300 | V-5596 | 1467-005 | 1D5D5 | MW.5-25 | 1FM-25 | " " " " |
| 40 | 8 | 300 | | | | | | Fixed Trimmer " " |
| 41 | 8 | 300 | | | | | | " " " " |
| 42 | 68 | 300 | | 1469-00007 | 5R5Q7 | MDS.5-47 | MS-47 | IF Coupling " " |
| 43 | .05 | 400 | RCP10M4503M | 484-05 | DT4S5 | ST-4-05 | TC-15 | AVC Filter " " |

Note-Used on Chassis V-2128-1.

# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | WESTINGHOUSE PART No. | MEISSNER PART No. | |
| 75 | Loop Ant. | | 1Ω | V-5638 | | |
| 76 | Loop Load. Coil | | 4Ω | V-5605 | | |
| 77 | FM-RF Coil | | 0Ω | V-5546 | | |
| 78 | Osc.Coil AM | | 10Ω | V-5514 | 14-1060 | |
| 79 | " " FM | | 0Ω | V-5545 | | |
| 80 | 1st IF AM | 8Ω | 8Ω | V-5535 | | |
| 81 | " " FM | 2Ω | 2Ω | V-5540 | | |
| 82 | 2nd IF AM | 12Ω | | V-5539 | | |
| 83 | " " FM | 2Ω | 2Ω | V-5540 | | |
| 84 | FM Det. Trans. | .5Ω | 0Ω | V-5538 | | |
| 85 | Conv. Cath. Choke | | 1Ω | V-4886 | | |
| 86 | Fil. Choke | | 0Ω | V-4638 | | |
| 87 | " | | 0Ω | V-4638 | | |
| 88 | " | | 0Ω | V-4638 | | |
| 89 | " | | 0Ω | V-4638 | | |
| 90 | " | | 0Ω | V-4638 | | |
| 91A | Line Choke | | 0Ω | V-5743 | | |
| B | " " | | 0Ω | | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | WESTINGHOUSE PART No. | | |
| 92 | Screw | 120 | | | #6S6 | | Type 6S6 |

## MISCELLANEOUS

| ITEM No. | PART NAME | WESTINGHOUSE PART No. | NOTES |
|---|---|---|---|
| 93 | Switch | V-5534 | Band |
| 94 | Tuning Gang | V-5494 | AM (17-430MMF, 25-170MMF) |
| A6 | Trimmer | V-4992 | BC Ant. Adj. |
| | Dial | V-5523 | |
| | Cabinet | V-1153-2 | Brown |
| | " | V-1153-1 | Ivory |
| | Knob | V-5560-1 | Band |
| | " | V-5559-1 | Volume |
| | " | V-5558-1 | Tuning |
| | Dial Pointer | V-4213 | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | WESTINGHOUSE PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 44A | 1 Meg. | ½ | V-8517 | D13-137* | M-63-Z* | Volume Control |
| B | Shaft | | Not Req. | A | Not Req. | Attach to 39A per instructions |
| C | Switch | | " " | 41 | SW-A | " " " " " |

*Use original insulating washer to isolate control from chassis.

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | WESTINGHOUSE PART No. | IRC PART No. | |
| 45 | 2200Ω | ½ | RC20AE222K | BTS-2200 | Red-Red-Red External Antenna Loading |
| 46 | 1 Meg. | ½ | RC20AE105M | BTS-1 Meg. | Br.-Blk.-Grn. Conv. Grid |
| 47 | 1000Ω | ½ | RC20AE102M | BTS-1000 | Br.-Blk.-Red Conv. Plate Decoupling |
| 48 | 470KΩ | ½ | RC20AE474M | BTS-470K | Yl.-Vi.-Yl. AVC Network-See Note 1 |
| 49 | 470KΩ | ½ | RC20AE474M | BTS-470K | Yl.-Vi.-Yl. AVC Network-See Note 2 |
| 50 | 470KΩ | ½ | RC20AE474M | BTS-470K | Yl.-Vi.-Yl. AVC Network-See Note 2 |
| 51 | 1000Ω | ½ | RC20AE102M | BTS-1000 | Br.-blk.-Red Conv. Cathode-See Note 3 |
| 52 | 10Ω | ½ | RC20AE100K | | Br.-blue-Blk. Parasitic Suppressor |
| 53 | 10KΩ | ½ | RC20AE103K | BTS-10K | Br.-Blk.-Or. Osc. Grid |
| 54 | 1000Ω | ½ | RC20AE102M | BTS-1000 | Br.-Blk.-Red Osc. Plate |
| 55 | 470Ω | ½ | | BTS-470 | Yl.-Vi.-Br Osc. Cathode-See Note 2 |
| 56 | 2.7 Meg. | ½ | RC20AE275M | BTS-2.7 Meg. | Red-Vi.-Grn. AVC Network |
| 57 | 68Ω | ½ | RC20AE680J | | Blue-Gray-Blk. 1st IF Cathode |
| 58 | 1000Ω | ½ | RC20AE102M | BTS-1000 | Br.-Blk.-Red 1st IF Decoup. |
| 59 | 12 Meg. | ½ | RC20AE126K | BTS-12 Meg. | Br.-Red-Blue IF Coupling |
| 60 | 470KΩ | ½ | RC20AE474M | BTS-470K | Yl.-Vi.-Yl. Diode Load |
| 61 | 68Ω | ½ | RC20AE680J | | Blue-Gray-Blk. 2nd IF Cathode |
| 62 | 1000Ω | ½ | RC20AE102M | BTS-1000 | Br.-Blk.-Red 2nd IF Decoup. |
| 63 | 22KΩ | ½ | RC20AE223M | BTS-22K | Red-Red-Or. De-emphasis |
| 64 | 10KΩ | ½ | RC20AE103K | BTS-10K | Br.-Blk.-Or. Rat. Det. Diode Load-See Note 4 |
| 65 | 10KΩ | ½ | RC20AE103K | BTS-10K | Br.-Blk.-Or. " " " " " " " " |
| 66 | 10 Meg. | ½ | RC20AE106M | BTS-10 Meg. | Br.-Blk.-Blue AF Grid |
| 67 | 470KΩ | ½ | RC20AE474M | BTS-470K | Yl.-Vi.-Yl. AF Plate Load |
| 68 | 470KΩ | ½ | RC20AE474M | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 69 | 180Ω | ½ | RC20AE181J | BW-½-180 | Br.-Gray-Br. Output Cathode |
| 70 | 1000Ω | 2 | RC40AE102M | BT-2-1000 | Br.-Blk.-Red Filter |
| 71 | 27Ω | ½ | RC20AE270K | BW-½-27 | Red-Vi.-Blk. Rectifier Ballast |

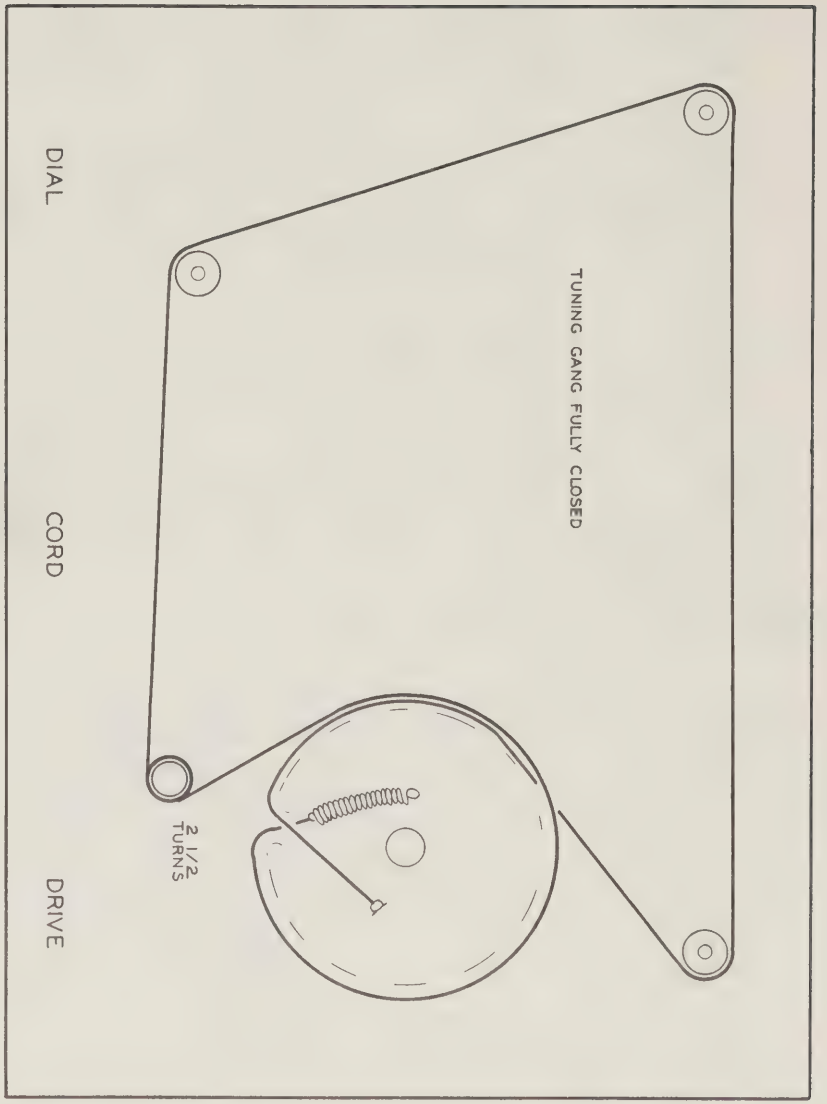
Note 1-Used on Ch. V-2128. Note 2-Used on Ch. V-2128-1.
Note 3-This resistor is 4700Ω ½ W. Part #RC20AE472K on Ch. V-2128.
Note 4-This resistor is 15KΩ ½ W. Part #RC20AE153J on Ch. V-2128.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | WESTINGHOUSE PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 72 | 10K Ω | 3.2Ω | 235Ω tapped @ 145Ω | .8Ω | V-8537 | A-3330 | | A-3031 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | WESTINGHOUSE PART No. | JENSEN PART No. | QUAM PART No. | |
| 73 | PM | 3.2Ω | V-8533 | ST-105‡ Mod. P5-X | 5A07‡ | ‡Fabricate new mounting bracket. |
| | CONE DIA. | VC DIA. | | | | |
| 74 | 4½" | 5/16" | | | | |



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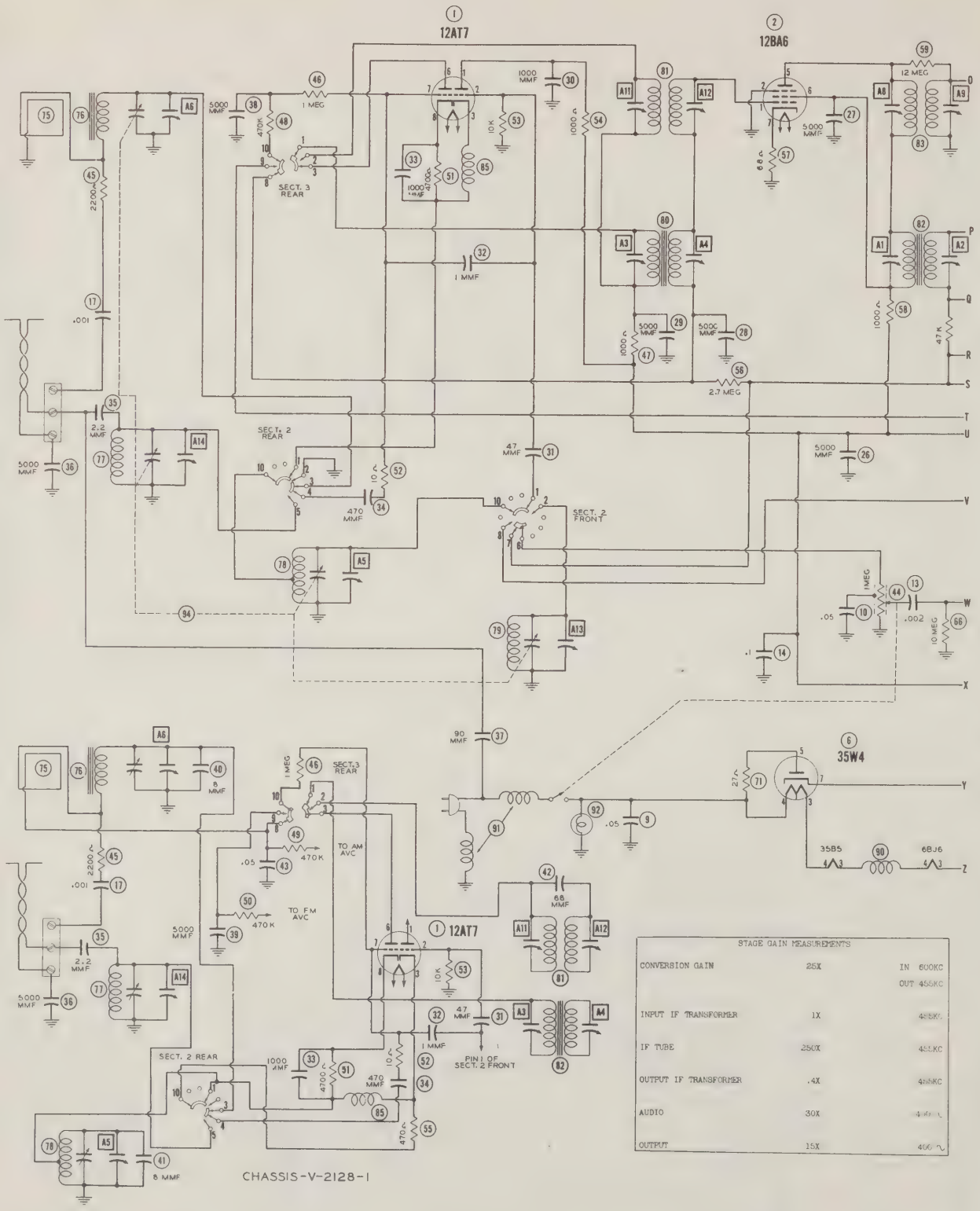
SET #53-FOLDER #2




| STAGE GAIN MEASUREMENTS | | |
|---|---|---|
| CONVERSION GAIN | 25X | IN 600KC<br>OUT 455KC |
| INPUT IF TRANSFORMER | 1X | 455KC |
| IF TUBE | 250X | 455KC |
| OUTPUT IF TRANSFORMER | .4X | 455KC |
| AUDIO | 30X | 400 ~ |
| OUTPUT | 15X | 400 ~ |

**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**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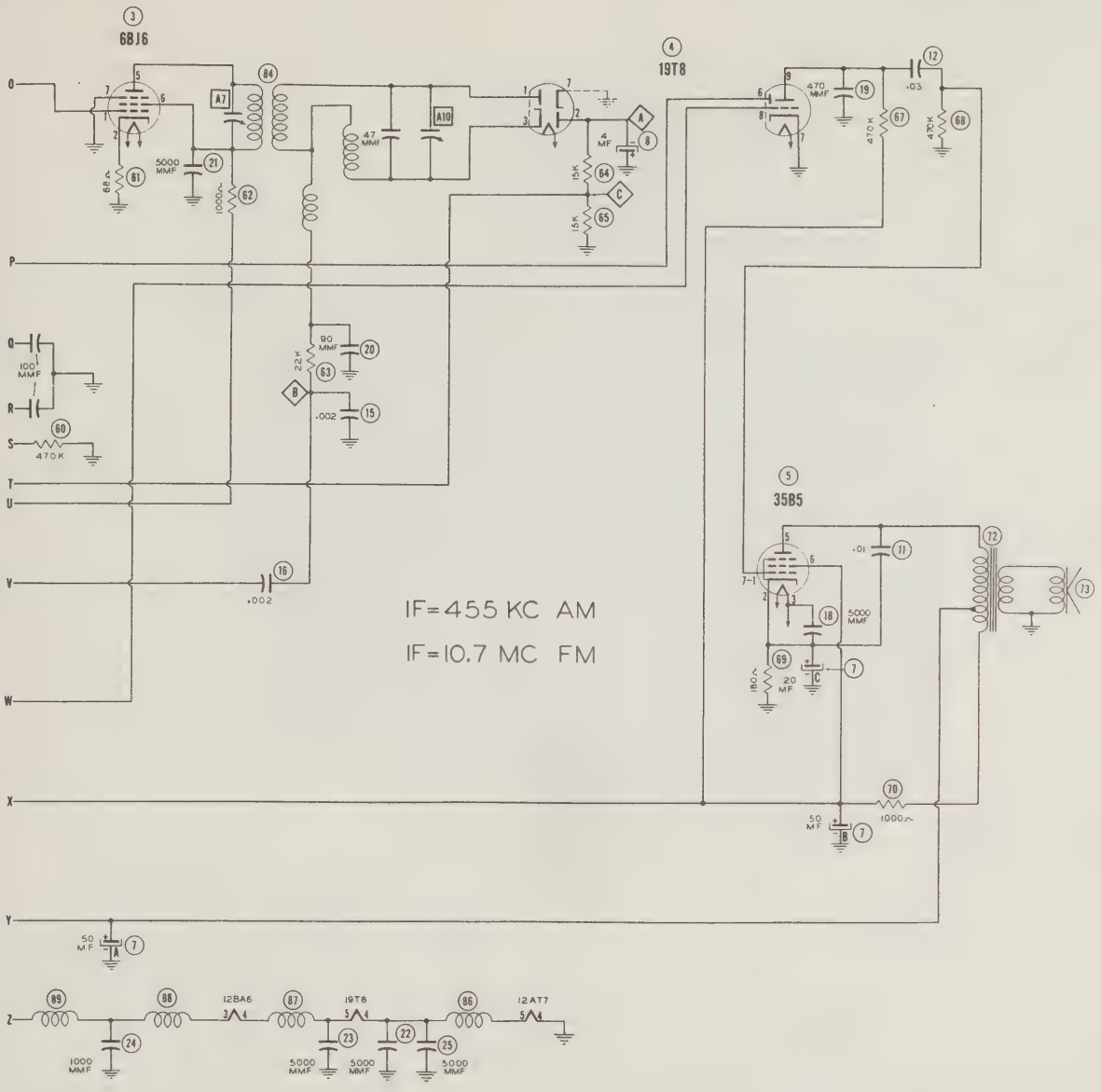


NOTE-ALL READINGS TAKEN WITH AM FM SWITCH IN FM POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12AT7 | 85VDC | -2VDC§ | 0V. | 0V. | 12VAC | 90VDC | 0V. | 23VDC | 5.5VAC |
| 2 | 12BA6 | 0V. | 0V. | 44VAC | 30VAC | 80VDC | 80VDC | .8VDC | - | - |
| 3 | 6BJ6 | 0V. | .8VDC | 44VAC | 50VAC | 80VDC | 80VDC | 0V. | - | - |
| 4 | 19T8 | -.4VDC | -.6VDC | -.4VDC | 12VAC | 30VAC | -.5VDC | 0V. | -.5VDC | 40VDC |
| 5 | 35B5 | 0V. | 5.2VDC | 50VAC | 80VAC | 115VDC | 90VDC | 0V. | - | - |
| 6 | 35W4 | 0V. | 0V. | 80VAC | 117VAC | 112VAC | 110VAC | 120VDC | - | - |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12AT7 | 61KΩ | 10KΩ | 1.5Ω | 0Ω | 12Ω | 60KΩ | 1.5 Meg. | 4.7KΩ | 6Ω |
| 2 | 12BA6 | 3.2 Meg. | 0Ω | 46Ω | 36Ω | 60KΩ | 60KΩ | 68Ω | - | - |
| 3 | 6BJ6 | 2Ω | 68Ω | 46Ω | 54Ω | 60KΩ | 60KΩ | 0Ω | - | - |
| 4 | 19T8 | INF. | 30KΩ | INF. | 12Ω | 36Ω | 520KΩ | 0Ω | 10 Meg. | 530KΩ |
| 5 | 35B5 | 470KΩ | 180Ω | 54Ω | 95Ω | 60KΩ | 60KΩ | 470KΩ | - | - |
| 6 | 35W4 | INF. | INF. | 95Ω | 130Ω | 150Ω | 120Ω | 60KΩ | - | - |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.


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## ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

AM-IF adjustments should be completed before FM-IF Adjustments.
To set dial pointer turn tuning cap. fully closed and set pointer 3-3/16" from extreme left edge of dial backplate. This is the calibration mark referred to in steps below.
Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.
Use an insulated screwdriver for all adjustments.

## AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to Pin 1 (grid) of 12BA6. Low side to chassis. | 455KC | AM (Counter clock-wise) | Tuning cap. fully open. | Across voice coil | A1,A2 | Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 2 | .1 MFD. | High side to large AM stator of tuning cap. Low side to chassis. | " | " | " | " | A3,A4 | Adjust for maximum output. |
| 3 | | Loop | 1400KC | " | 4" from calibration mark | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 4 | | " | " | " | Tune for maximum output. | " | A6 | Rock tuning cap. and adjust for maximum output. Repeat Steps 3 & 4 until no further improvement can be made. |

## FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 5 | .002 MFD Mica Cap. | High side to Pin 1 (grid) of 12BA6. Low side to chassis. | 10.7MC (Unmodulated) | FM (Clock-wise) | Tuning cap. fully open. | DC probe to Point (A). Common to chassis. | A7,A8, A9 | Adjust for maximum deflection. |
| 6 | " | " | " | " | " | DC probe to Point (B). Common to Point (A). | A10 | Adjust for zero deflection. Repeat Step 5. |
| 7 | " | High side to Pin 7 (grid) of 12AT7. Low side to chassis. | " | " | " | DC probe to Point (A). Common to chassis | A11, A12 | Connect short across rear FM stator of tuning cap. Adjust All & Al2 for maximum deflection. Remove short and continue with FM RF Alignment, Step 8. |

## FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 5 | .1 MFD. | High side to Pin 1 (grid) of 12BA6. Low side to chassis. | 10.7MC (Freq. Mod.) | FM (Clock-wise) | Tuning cap. fully open. | Vertical input to Point (A). Ground to chassis. | A7,A8 A9 | Disconnect 4 MFD cap. (1) from Point (A). Adjust A7, A8 and A9 for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. |
| 6 | .1 MFD. | High side to Pin 7 (grid) of 12AT7. Low side to chassis. | " | " | " | " | A11, A12 | Connect short across rear FM stator of tuning cap. Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Reconnect 4 MFD. cap. (1) to Point (A). |
| 7 | .1 MFD. | " | " | " | " | Vertical input to Point (B). Ground to Point (A). | A10 | Adjust for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 1. Remove short across rear FM stator of tuning cap. and continue with FM RF Alignment in Step 8. |

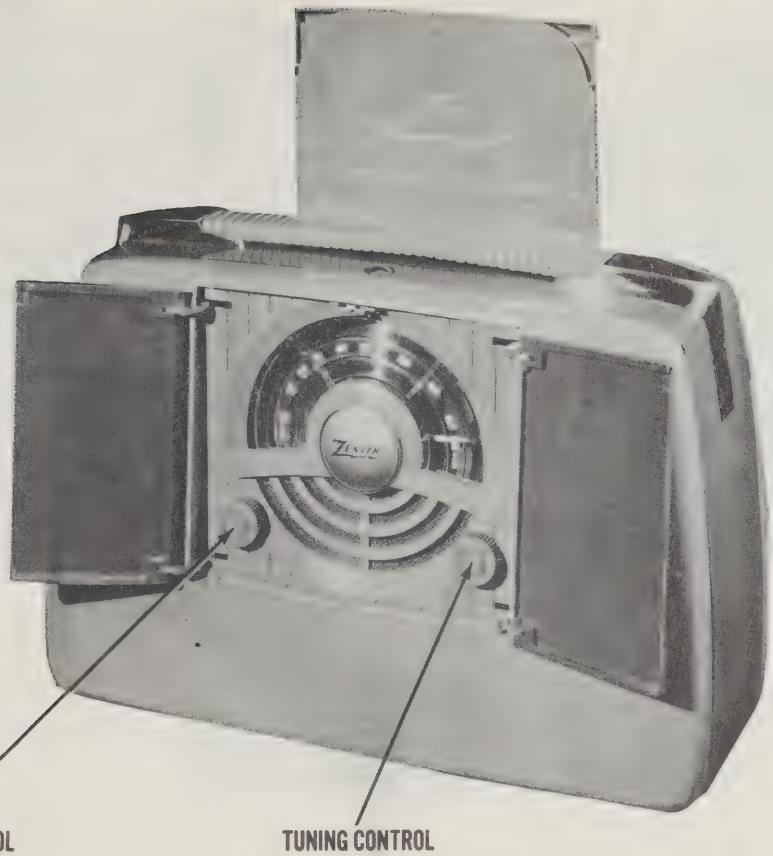
## FM RF ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 8 | 300Ω carbon res. | High side to FM ant. terminal. Low side to terminal "G" | 108MC (Unmodulated) | FM | 4-13/16" from calibration mark | DC probe to Point (A). Common to chassis | A13 | Adjust for maximum deflection. |
| 9 | " | " | " | " | Tune for maximum deflection. | " | A14 | Rock tuning cap. and adjust for maximum deflection. After A13 & A14 have been adjusted correctly, secure adjustments with speaker cement. |

FIG. 1

FIG. 2

ZENITH MODEL 6G801 (Ch. 6E40)
BATTERY-LINE OPERATED




ZENITH MODEL 6G801 (Ch. 6E40)
BATTERY-LINE OPERATED

ZENITH MODEL 6G801

| | |
|---|---|
| **TRADE NAME** | Zenith, Model 6G801 (Ch. 6E40) |
| **MANUFACTURER** | Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill. |
| **TYPE SET** | Three Power Operated Portable Superheterodyne Receiver with Loop Antenna |
| **TUBES** (SIX) | Types, 1LN5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3Q5GT Power Output, 117Z3 Rectifier. |
| POWER SUPPLY | 110-120 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply |
| RATING | .15 Amp. @ 117 Volts AC or 54MA @ 9 Volts DC and 13MA @ 90 Volts DC |
| **TUNING RANGE—BROADCAST** | 535-1620KC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to Pin 6 (grid) of 1LA6. Low side to B-. | 455KC | Tuning cap. fully closed. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation. |
| 2 | | Loop | 1600KC | Tuning cap. fully open. | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. |
| 3 | | " | 1400KC | Tune for maximum output | " | A6,A7 | Adjust for maximum output. |

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DATE 1/49-#491-26 SET #53-FOLDER #26

# PARTS LIST AND DESCRIPTIONS

ZENITH
MODEL 6G801

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: ZENITH PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 1LN5 | 1LN5 | 7AO | |
| 2 | Converter | 1LA6 | 1LA6 | 7AK | |
| 3 | IF Amp. | 1LN5 | 1LN5 | 7AO | |
| 4 | Det.-AVC-AF | 1LH4 | 1LH4 | 5AG | |
| 5 | Power Output | 3Q5GT | 3Q5GT | 7AP | |
| 6 | Rectifier | 11Z3 | 11Z3 | 4BR | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: ZENITH PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 7A | 60 | 150 | 22-1741 | | UP64215* | DY-604020-150* | D5180 | ◓ Filter |
| B | 40 | 150 | | | | | | ■ " |
| C | 20 | 150 | | | | | | ▲ " |
| D | 200 | 16 | | | BRH1225 | M-250-12 | | Fil. Bypass |
| 8 | .05 | 400 | 22-1017 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Filter |
| 9 | .1 | 200 | 22-827 | 484-.1 | GT2P1 | ST-2-1 | 72P2 | Line Isolation |
| 10 | .01 | 400 | 22-1182 | 484-01 | GT4S1 | ST-4-01 | TC-11 | Output Plate Bypass |
| 11 | .01 | 600 | 22-196 | 684-01 | GT6S1 | ST-6-01 | TC-11 | Audio Coupling |
| 12 | .01 | 600 | 22-196 | 684-01 | GT6S1 | ST-6-01 | TC-11 | " " |
| 13 | .02 | 200 | 22-327 | 484-02 | GT2S2 | ST-4-02 | TC-12 | Feedback |
| 14 | .05 | 200 | 22-829 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 15 | .05 | 200 | 22-829 | 484-05 | GT2S5 | ST-4-05 | TC-15 | Conv. Screen Bypass |
| 16 | .05 | 200 | 22-829 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 17 | .1 | 200 | 22-827 | 484-.1 | GT2P1 | ST-2-1 | TC-1 | Fil. Bypass |
| 18 | 150 | 300 | 22-1675 | 1468-00015 | 5W5T15 | | | AF Plate Bypass-Cer. |
| 19 | 250 | 300 | 22-1666 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | RF Coupling " |
| 20 | 2 | 300 | 22-1763 | | | | | Fixed Trimmer " |

*Install new mounting socket.

## CONTROLS

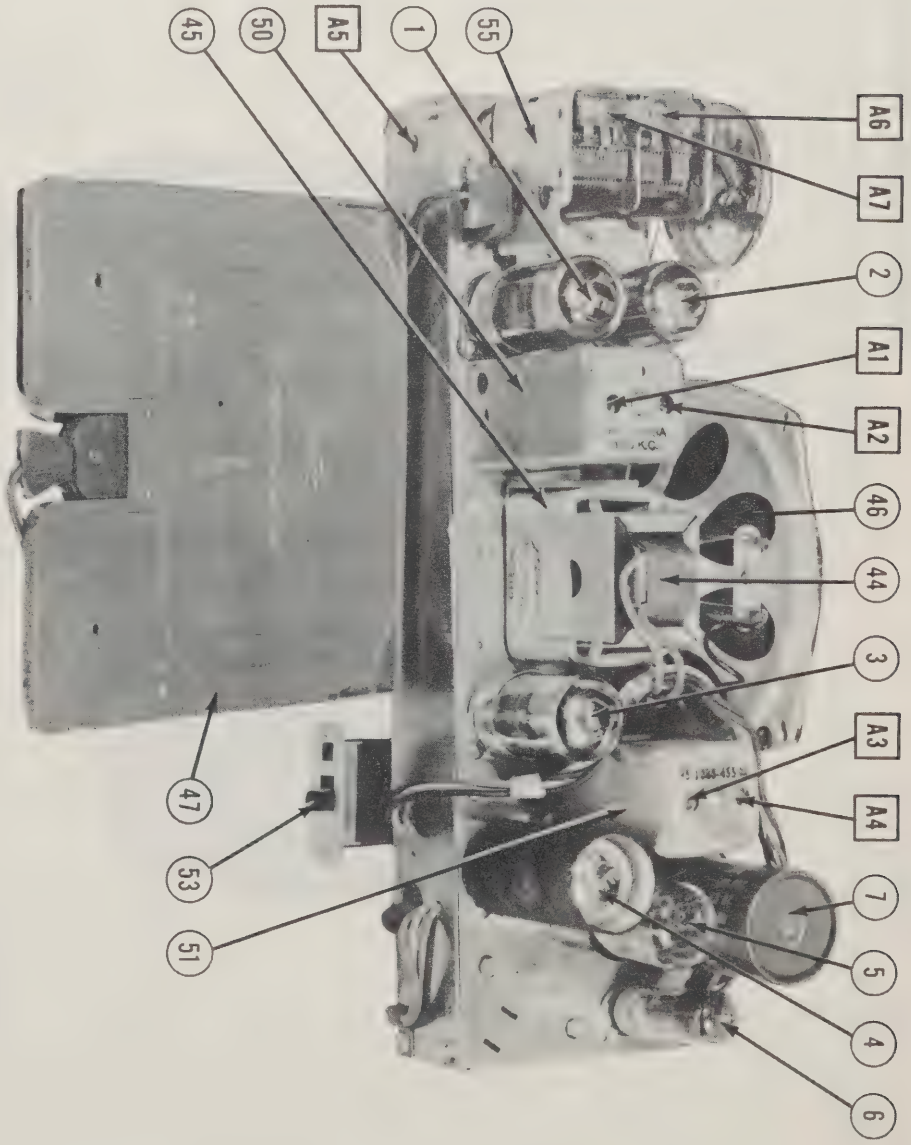
| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: ZENITH PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 21A | 1 Meg. | ½ | 63-1642 | D11-137 | AM-61-S | Volume Control |
| B | Shaft | | Not Req. | E | KSS-3 | Attach to 21A per instructions |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: ZENITH PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 22 | 10 Meg. | ½ | 63-1954 | BTS-10 Meg. | Br.-Blk.-Blue AVC Network |
| 23 | 10KΩ | ½ | 63-1827 | BTS-10K | Br.-Blk.-Or. RF Plate |
| 24 | 4.7 Meg. | ½ | 63-1940 | BTS-4.7 Meg. | Yl.-Vi.-Grn. Converter Grid |
| 25 | 2.2 Meg. | ½ | 63-1926 | BTS-2.2 Meg. | Red-Red-Grn. " " |
| 26 | 180KΩ | ½ | 63-1880 | BTS-180K | Br.-Gray-Yl. Oscillator Grid |
| 27 | 47KΩ | ½ | 63-1856 | BTS-47K | Yl.-Vi.-Or. Converter Screen Dropping |
| 28 | 10 Meg. | ½ | 63-1954 | BTS-10 Meg. | Br.-Blk.-Blue AVC Network |
| 29 | 2.2 Meg. | ½ | 63-1926 | BTS-2.2 Meg. | Red-Red-Grn. " " |
| 30 | 3.3 Meg. | ½ | 63-1933 | BTS-3.3 Meg. | Or.-Or.-Grn. " " |
| 31 | 4.7 Meg. | ½ | 63-1940 | BTS-4.7 Meg. | Yl.-Vi.-Grn. " " |
| 32 | 4.7 Meg. | ½ | 63-1940 | BTS-4.7 Meg. | Yl.-Vi.-Grn. AF Grid |
| 33 | 1 Meg. | ½ | 63-1912 | BTS-1 Meg. | Br.-Blk.-Grn. AF Plate Load |
| 34 | 2.2 Meg. | ½ | 63-1926 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 35 | 8200Ω | ½ | 63-1824 | BTS-8200 | Gray-Red-Red Feedback |
| 36 | 2200Ω | ½ | 63-1799 | BTS-2200 | Red-Red-Red " |
| 37 | 75Ω | 2 | 63-1562 | BW-2-68 | Vi.-Grn.-Blk. Surge Limiter-See Note |
| 38A | 950Ω | 10 | 63-1362 | AB-1000 | Filament Dropping |
| B | 950Ω | | | AB-1000 | " " |
| 39 | 330Ω | ½ | 63-1765 | BW-½-330 | Or.-Or.-Br. Filament String |
| 40 | 680Ω | ½ | 63-1778 | BW-½-680 | Blue-Gray-Br. " " |
| 41 | 680Ω | ½ | 63-1778 | BW-½-680 | Blue-Gray-Br. " " |
| 42 | 1500Ω | ½ | 63-1792 | BTS-1500 | Br.-Grn.-Red Filter |
| 43 | 220Ω | ½ | 63-1758 | BW-½-220 | Red-Red-Br. Parasitic Suppressor |

Note-In models using selenium rectifier, 140Ω is used in this application. IRC replacement BW-2-150.

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING IMPEDANCE PRI. | RATING IMPEDANCE SEC. | RATING DC RES. PRI. | RATING DC RES. SEC. | REPLACEMENT DATA ZENITH PART No. | STANCOR PART No. | THORDARSON PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 44 | 7500Ω | 3.5Ω | 690Ω | .7Ω | 206-631 | A-3848‡ | T22S47‡ | A-2931‡ | ‡Bend mounting tabs down, file out slots and mount on original bracket. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA ZENITH PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-107† | 52A21‡ | †Use adaptor baffle. |
| 45 | PM | 3.5Ω | 49-631 | Mod. P5-V | | ‡Fabricate new mounting bracket. |
| | CONE DIA. | VC DIA. | | | | |
| 46 | 5-1/8" | 3/4" | | | | |

## R F COILS

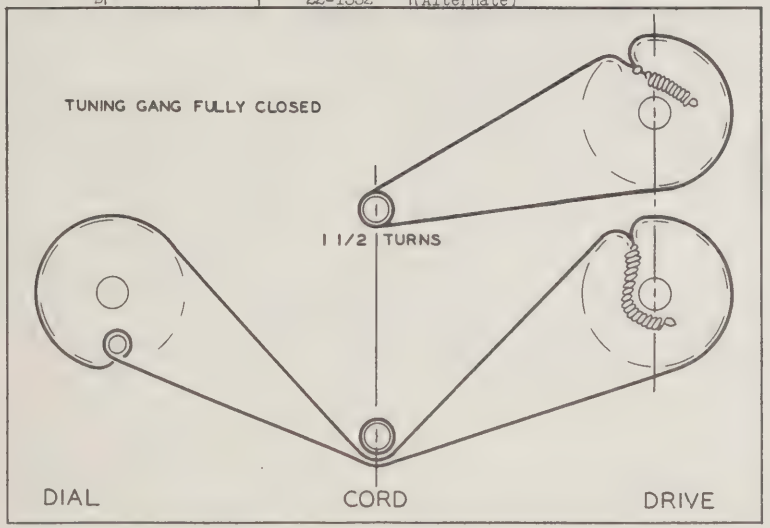
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA ZENITH PART No. | MEISSNER PART No. |
|---|---|---|---|---|---|
| 47 | Loop Ant. | | 1.2Ω | S-14422 | |
| 48 | RF Coil | 6Ω | 5.5Ω | S-14385 | |
| 49 | Osc. Coil | 2.8Ω | 7.8Ω | S-14389 | |
| 50 | Input IF | 15Ω | 15Ω | 95-1085 | 16-5712 |
| 51 | Output IF | 15.5Ω | | 95-1086 | 16-6670 |

## BATTERIES

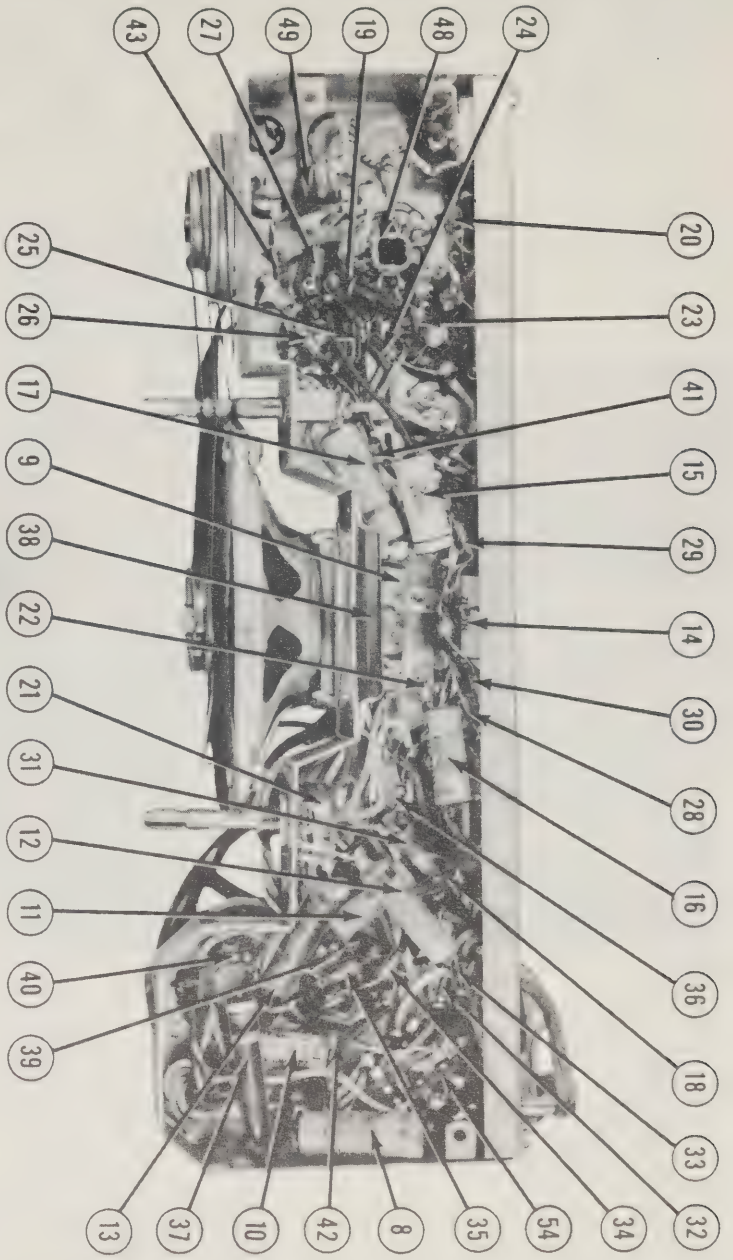
| ITEM No. | VOLTAGE | ZENITH PART No. | REPLACEMENT DATA EVEREADY "A" | EVEREADY "B" | EVEREADY "A-B" | BURGESS "A" | BURGESS "B" | BURGESS "A-B" | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 52 | 9V "A" 90V "B" | Z909 | | | | | | F6A60P | |

## MISCELLANEOUS

| ITEM No. | PART NAME | ZENITH PART No. | NOTES |
|---|---|---|---|
| 53 | Switch | 85-428 | On-Off |
| 54 | " | 85-311 | AC/DC-Batt. |
| 55A | 3 Gang Var. Cap. | 22-1727 | (27-468MMF, 14-207MMF, 10-83MMF) |
| B | " " " " | 22-1352 | (Alternate) |



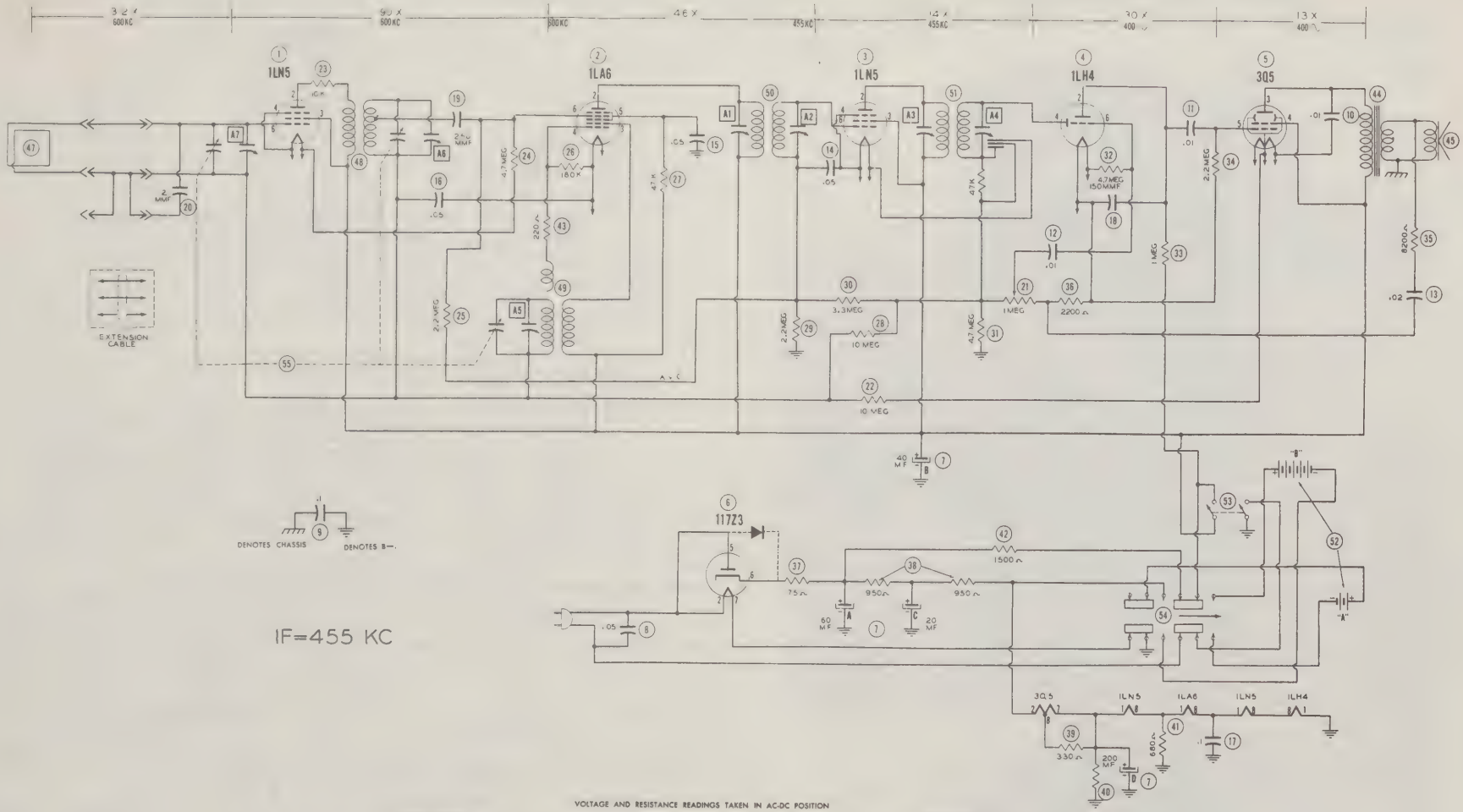

# CHASSIS—BOTTOM VIEW








ZENITH MODEL 6G801




VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1LN5 | 5VDC | 70VDC | 83VDC | 3.6VDC | 3.6VDC | .1VDC | 0V. | 3.6VDC |
| 2 | 1LA6 | 3.6VDC | 83VDC | 83VDC | 4.5VDC§ | 5.4VDC | .2VDC | .2VDC | 2.8VDC |
| 3 | 1LN5 | 2.5VDC | 83VDC | 83VDC | 1.2VDC | 1.2VDC | .2VDC | .2VDC | 1.2VDC |
| 4 | 1LH4 | 0V. | 45VDC | CV. | .2VDC | CV. | -.2VDC | 0V. | 1.2VDC |
| 5 | 3Q5GT | 0V. | 7.8VDC | 78VDC | 83VDC | .1VDC | 0V. | 5VDC | 6.5VDC |
| 6 | 117Z3 | 0V. | CV. | CV. | 117VAC | 117VAC | 113VDC | CV. | - |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1LN5 | * | 12KΩ | 2KΩ | * | * | 5 Meg. | INF. | * |
| 2 | 1LA6 | * | 2KΩ | 2KΩ | 180KΩ | 50KΩ | 2 Meg. | 1.1 Meg. | * |
| 3 | 1LN5 | * | 2KΩ | 2KΩ | * | * | 1.1 Meg. | 650KΩ | * |
| 4 | 1LH4 | 0Ω | 1 Meg. | INF. | 700KΩ | INF. | 4.7 Meg. | INF. | * |
| 5 | 3Q5GT | INF. | * | 2KΩ | 2KΩ | 2.2 Meg. | INF. | * | * |
| 6 | 117Z3 | INF. | INF. | 0Ω | 400Ω | 400Ω | 2KΩ | INF. | - |

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

PHOTOFACT STANDARD NOTATION SCHEMATIC

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491-26

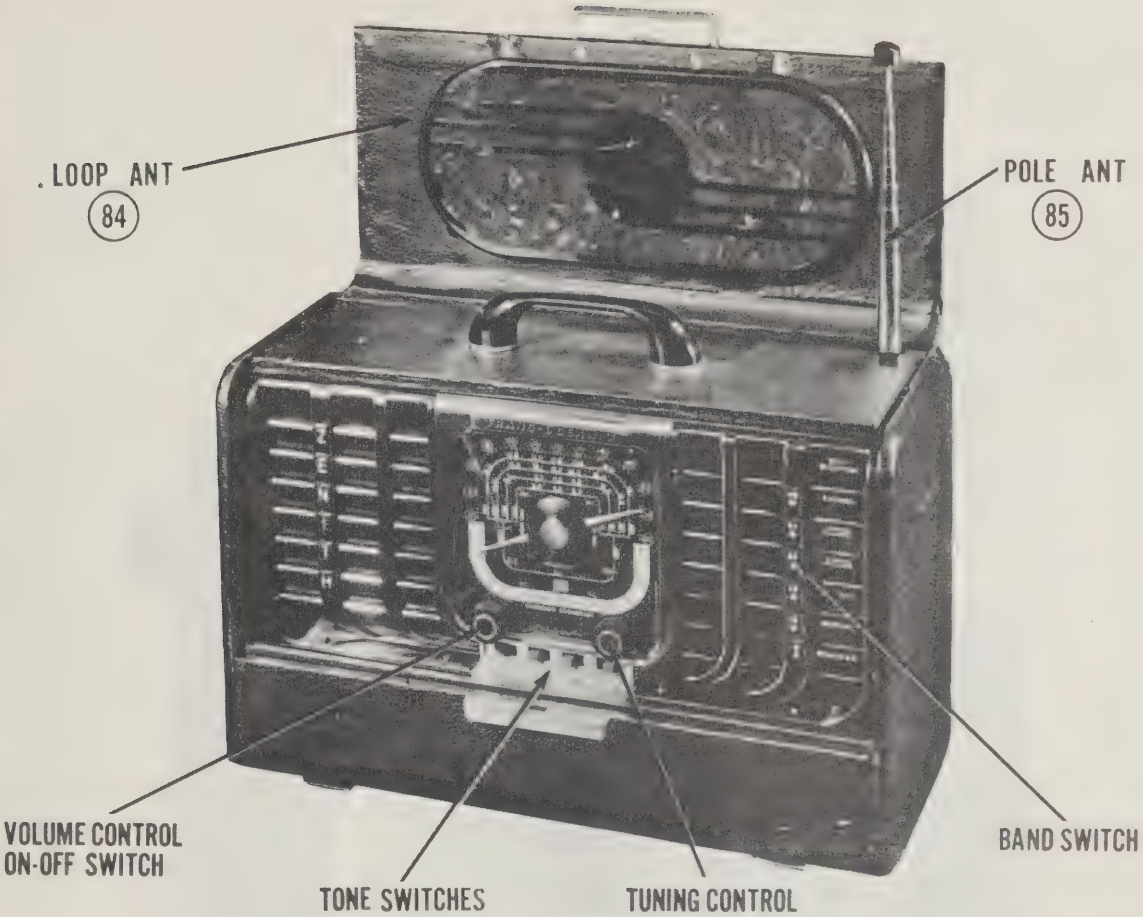
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting high side of volume control to Pin 8 of 1LH4.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

# ZENITH MODELS 8G005YT(Z1), Ch. 8C40T(Z1); 8G005YT(Z2), Ch. 8C40T(Z2), BATTERY-LINE OPERATED

ZENITH MODELS 8G005YT(Z1), Ch. 8C40T(Z1); 8G005YT(Z2), Ch. 8C40T(Z2), BATTERY-LINE OPERATED




ZENITH MODELS 8G005YT(Z1), Ch. 8C40T(Z1); 8G005YT(Z2), Ch. 8C40T(Z2), BATTERY-LINE OPERATED

ZENITH MODEL 8G005YT(Z1)

| | |
|---|---|
| TRADE NAME | Zenith, Models 8G005YT(Z1), Ch. 8C40T(Z1); 8G005YT(Z2), Ch. 8C40T(Z2) |
| MANUFACTURER | Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill. |
| TYPE SET | Three Power Operated Portable Multi-Band Superheterodyne Receiver with Loop Antenna |
| TUBES (EIGHT) | Types, 1LN5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LD5 Det.-AVC-AF, 1LE3 Phase Inverter, (2) 1LB4 Power Output, 117Z3 Rectifier |
| POWER SUPPLY | 110-120 Volts AC-DC or 1.5 Volts and 9 Volts "A" Supply and 90 Volts "B" Supply |
| RATING | .15 Amps. @ 117 Volts AC or 50 MA @ 1.5 Volts DC and 50 MA @ 9 Volts DC and 16 MA @ 90 Volts DC |
| TUNING RANGE-BROADCAST | 535-1620KC SHORT WAVE- 49 Meter Band, 6-6.27MC; 31 Meter Band, 9.4-9.9MC; 25 Meter Band, 11.6-12.1MC; 19 Meter Band, 15-15.6MC; 16 Meter Band, 17.5-18.3MC. |

HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana

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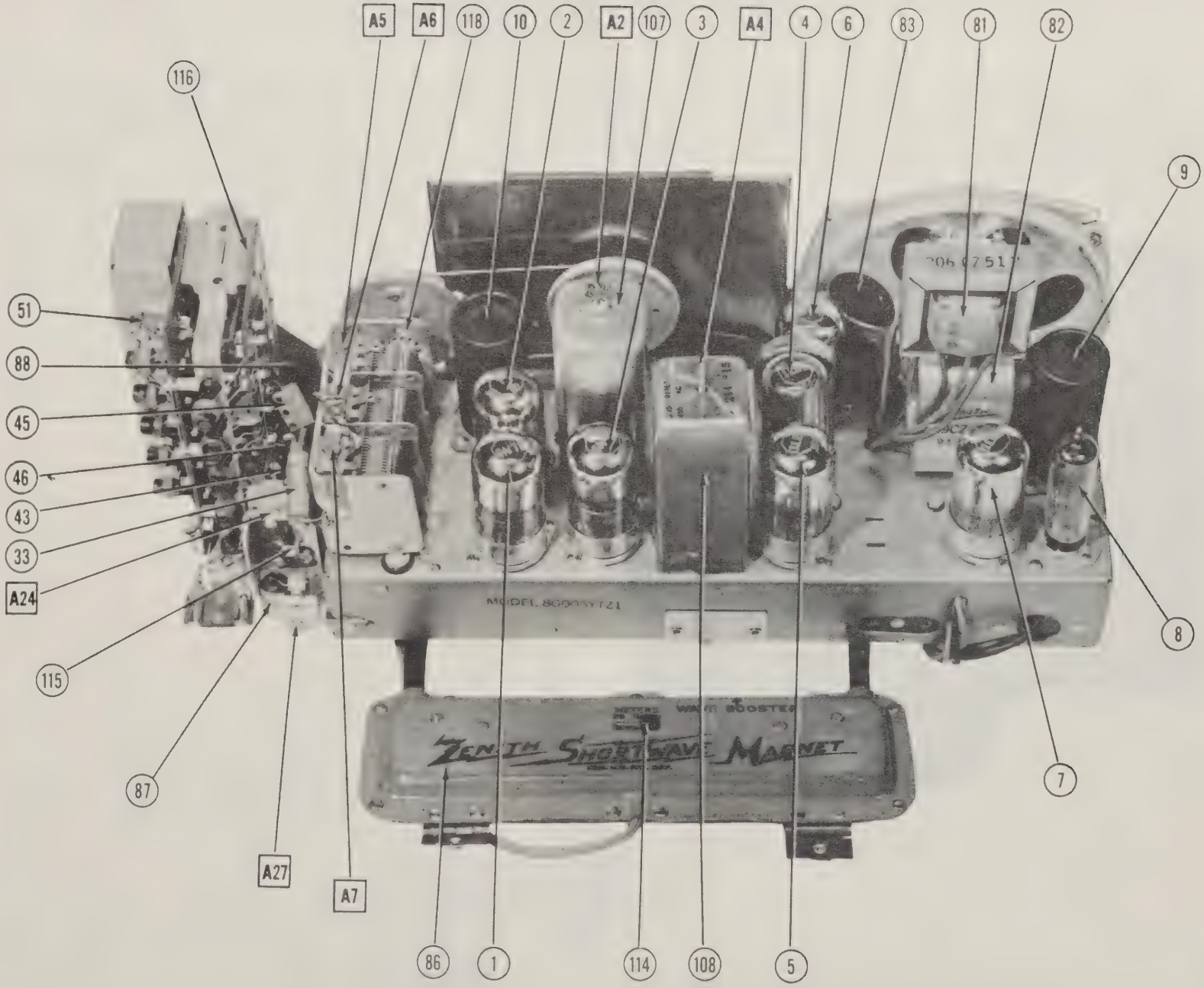
DATE 1/49-#491-27 SET #53-FOLDER #27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# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: ZENITH PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 1LN5 | 1LN5 | 7AO | |
| 2 | Converter | 1LA6 | 1LA6 | 7AK | |
| 3 | IF Amp. | 1LN5 | 1LN5 | 7AO | |
| 4 | Det.-AVC-AF | 1LD5 | 1LD5 | 6AX | |
| 5 | Phase Inverter | 1LE3 | 1LE3 | 4AA | |
| 6 | Power Output | 1LB4 | 1LB4 | 5AD | |
| 7 | " " | 1LB4 | 1LB4 | 5AD | |
| 8 | Rectifier | 11Z3 | 11Z3 | 4BR | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: ZENITH PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | SOLAR PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 9A | 40 | 150 | 22-1426 | AF844D | UP42215 | DY-402010-150 | EL-224 | ■ Filter |
| B | 20 | 150 | | | | | | ▲ " Decoupling |
| C | 10 | 150 | | | | | | |
| 10A | 40 | 150 | 22-1234 | | UP5015 | DY-40-150 | D5110 | ■ Filter |
| B | 200 | 10 | | | BRH1225 | M-250-12 | | ▲ Fil. Bypass |
| 11 | .05 | 400 | 22-818 | 484-05 | GT4S5 | ST-4-05 | TC-15 | Line Filter |
| 12 | .05 | 200 | 22-1430 | 484-05 | GT2S5 | ST-4-05 | TC-15 | Line Isolation |
| 13 | .004 | 600 | 22-805 | 684-004 | GT6D4 | ST-6-004 | TC-24 | Output Plate Bypass |
| 14 | .004 | 600 | 22-805 | 684-004 | GT6D4 | ST-6-004 | TC-24 | " " " |
| 15 | .01 | 600 | 22-811 | 684-01 | GT6S1 | ST-6-01 | TC-11 | Audio Coupling |
| 16 | .01 | 600 | 22-811 | 684-01 | GT6S1 | ST-6-01 | TC-11 | " " |
| 17 | .01 | 600 | 22-811 | 684-01 | GT6S1 | ST-6-01 | TC-11 | " " |
| 18 | .004 | 600 | 22-805 | 684-004 | GT6D4 | ST-6-004 | TC-24 | " " |
| 19 | .05 | 200 | 22-817 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AF Screen Bypass |
| 20 | .05 | 200 | 22-817 | 484-05 | GT2S5 | ST-4-05 | TC-15 | RF Bypass |
| 21 | .02 | 200 | 22-813 | 484-02 | GT2S2 | ST-4-02 | TC-12 | Tone Compensation |
| 22 | .01 | 200 | 22-1437 | 484-01 | GT2S1 | ST-4-01 | TC-11 | " " |
| 23 | .02 | 200 | 22-813 | 484-02 | GT2S2 | ST-4-02 | TC-12 | IF Plate Decoupling |
| 24 | .02 | 200 | 22-813 | 484-02 | GT2S2 | ST-4-02 | TC-12 | Fil. Bypass |
| 25 | .02 | 200 | 22-813 | 484-02 | GT2S2 | ST-4-02 | TC-12 | " " |
| 26 | .05 | 200 | 22-817 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 27 | .05 | 200 | 22-817 | 484-05 | GT2S5 | ST-4-05 | TC-15 | " " |
| 28 | .05 | 200 | 22-817 | 484-05 | GT2S5 | ST-4-05 | TC-15 | Converter Screen Byp. |
| 29 | .1 | 200 | 22-820 | 484-.1 | GT2P1 | ST-2-1 | TC-1 | Fil. Bypass |
| 30 | .01 | 200 | 22-1437 | 484-01 | GT2S1 | ST-4-01 | TC-11 | Det. Tuned Circuit |
| 31 | .01 | 200 | 22-1437 | 484-01 | GT2S1 | ST-4-01 | TC-11 | RF Bypass |
| 32 | .05 | 200 | 22-817 | 484-05 | GT2S5 | ST-4-05 | TC-15 | AVC Filter |
| 33 | .01 | 200 | 22-1437 | 484-01 | GT2S1 | ST-4-01 | TC-11 | Tuning Cap. Isol. |
| 34 | .05 | 200 | 22-817 | 484-05 | GT2S5 | ST-4-05 | TC-15 | RF Bypass |
| 35 | 200 | 500 | 22-953 | 1468-0002 | 5W5T2 | MO.5-32 | 1FM-32 | Tone Compensation |
| 36 | 150 | 500 | 22-470 | 1468-00015 | 5W5T15 | MO.5-315 | 1FM-315 | AF Plate Bypass |
| 37 | 150 | 500 | 22-470 | 1468-00015 | 5W5T15 | MO.5-315 | 1FM-315 | Tone Compensation |
| 38 | 250 | 500 | | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | Osc. Grid Cap. |
| 39 | 150 | 300 | 22-470 | 1468-00015 | 5W5T15 | MO.5-315 | 1FM-315 | Fixed Padder-Cer. |
| 40 | 150 | 300 | 22-1740 | 1469-00015 | 5R5T15 | MOS.5-315 | MS-315 | Fixed Padder- " |
| 41 | 500 | 500 | 22-147 | 1468-0005 | 5W5T5 | MO.5-35 | 1FM-35 | Osc. Coupling |
| 42 | 150 | 300 | 22-470 | 1468-00015 | 5W5T15 | MO.5-315 | 1FM-315 | Fixed Padder-Cer. |
| 43 | 25 | 300 | 22-1392 | 1469-000025 | 5R5Q25 | MOS.5-425 | MS-425 | Fixed Trimmer-Cer. |
| 44 | 25 | 300 | 22-1392 | 1468-000025 | 5W5Q25 | MO.5-425 | 1FM-425 | RF Coupling " |
| 45 | 50 | 500 | | 1468-00005 | 5W5Q5 | MO.5-45 | 1FM-45 | " " |
| 46 | 50 | 500 | | 1469-00005 | 5R5Q5 | MOS.5-45 | MS-45 | Fixed Padder |
| 47 | 250 | 500 | 22-1391 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | RF Coupling |
| 48 | 250 | 500 | 22-1391 | 1468-00025 | 5W5T25 | MO.5-325 | 1FM-325 | " " |
| 49 | 500 | 500 | 22-147 | 1468-0005 | 5W5T5 | MO.5-35 | 1FM-35 | " " |

# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

| ITEM No. | USE | DC RES.: PRI. | DC RES.: SEC. | REPLACEMENT DATA: ZENITH PART No. | REPLACEMENT DATA: MEISSNER PART No. | |
|---|---|---|---|---|---|---|
| 84 | Loop Ant.BC | | 1Ω | S11246 | | |
| 85 | Pole Ant. | | | S11251 | | |
| 86 | Loop Ant.SW | | 0Ω | S11562 | | |
| 87 | Wave Trap Coil | | 0Ω | S11821 | | |
| 88 | Ant. Load. Coil | | .1Ω | S11591 | | |
| 89A | Ant.Coil 42M | | .6Ω | S14124 | | Model 8G005YT(Z1) |
| B | " " " | | | S14603 | | Model 8G005YT(Z2) |
| 90 | " " 31M | | .4Ω | S14123 | | |
| 91 | " " 25M | | .2Ω | S14122 | | |
| 92 | " " 19M | | .2Ω | S14121 | | |
| 93 | " " 16M | | 0Ω | S14120 | | |
| 94 | RF Coil BC | 7.8Ω | 4Ω | S11210 | | |
| 95A | " " 49M | | .9Ω | S14119 | | Model 8G005YT(Z1) |
| B | " " 49M | | | S14602 | | Model 8G005YT(Z2) |
| 96 | " " 31M | | .5Ω | S14118 | | |
| 97 | " " 25M | | .3Ω | S14117 | | |
| 98 | " " 19M | | .2Ω | S14116 | | |
| 99 | " " 16M | | .1Ω | S14115 | | |
| 100 | Conv. Grid Coil | | 3.5Ω | S11952 | | |
| 101A | Osc.Coil BC | 2.8Ω | 5.5Ω | S14404 | | |
| B | " " SW | 0Ω | .8Ω | | | |
| 102A | Osc. Shunt Coil 49M | | .5Ω | S14402 | | Model 8G005YT(Z1) |
| B | " 49M | | | S14601 | | Model 8G005YT(Z2) |
| 103 | " 31M | | .3Ω | S14401 | | |
| 104 | " 25M | | 0Ω | S14400 | | |
| 105 | " 19M | | 0Ω | S14399 | | |
| 106 | " 16M | | 0Ω | S14398 | | |
| 107 | Input IF | 16.5Ω | 17Ω | 95-912 | 16-5740 | |
| 108 | Output IF | 16.5Ω | | 95-913 | 16-6670 | |
| 109 | Osc. Grid Choke | | .1Ω | S14403 | | |
| 110 | Osc. Plate Choke | | 2.8Ω | S11822 | | |

## BATTERIES

| ITEM No. | VOLTAGE | ZENITH PART No. | REPLACEMENT DATA: EVEREADY "A" | EVEREADY "B" | EVEREADY "A-B" | BURGESS "A" | BURGESS "B" | BURGESS "A-B" | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 111 | 1.5V "A" | Z-1 | 1052-P | | | TE | | | |
| 112 | 9V "A" 90V "B" | Z-958X | | | 752-W | | | G6B60 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | ZENITH PART No. | NOTES |
|---|---|---|---|
| 113 | Switch | 85-333 | AC/DC Batt. |
| 114 | " | 85-225 | SW on Loop |
| 115 | " | 85-335 | Antenna |
| 116 | " | 85-409 | Band |
| 117 | " | 85-332 | Tone |
| 118 | 3 Gang Var. Cap | 22-1373 | (14-459MMF, 15-342MMF, 21-190MMF) |
| A25 | Trimmer | 22-1329 | 25 Meter Ant. Adj. |
| A26 | " | 22-1329 | 31 " " " |
| A27 | " | 22-1425 | Wave Trap Adj. |
| | Cabinet | 14-905 | |
| | Dial Pointer | 59-155 | |
| | Dial Scale | 26-398 | Model 8G005YT(Z1) |
| | " " | 26-400 | Model 8G005YT(Z2) |
| | Indicator | 59-195 | On-Off |
| | Dial Crystal | 192-87 | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | ZENITH PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 50A | 1 Meg. | ½ | 63-1344 | D13-137X | AT-98 | Volume Control tapped @ 300KΩ |
| B | Shaft | | Not Req. | E | KSS-3 | Attach to 50A per instructions |
| C | Switch | | " " | 42 | SW-A2 | " " " " " |

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | ZENITH PART No. | IRC PART No. | |
| 51 | 22KΩ | ½ | 63-591 | BTS-22K | Red-Red-Or. Sw. Conv. Coil Shunt |
| 52 | 1 Meg. | ½ | 63-271 | BTS-1 Meg. | Br.-Blk.-Grn. RF Grid |
| 53 | 15KΩ | ½ | 63-590 | BTS-15K | Br.-Grn.-Or. RF Plate |
| 54 | 2200Ω | ½ | 63-585 | BTS-2200 | Red-Red-Red Screen Dropping |
| 55 | 2.2 Meg. | ½ | 63-600 | BTS-2.2 Meg. | Red-Red-Grn. Conv. Grid |
| 56 | 2.2 Meg. | ½ | 63-600 | BTS-2.2 Meg. | Red-Red-Grn. " " |
| 57 | 180KΩ | ½ | 63-654 | BTS-180K | Br.-Gray-Yl. Osc. Grid |
| 58 | 1 Meg. | ½ | 63-271 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 59 | 1 Meg. | ½ | 63-271 | BTS-1 Meg. | Br.-Blk.-Grn. " " |
| 60 | 2.2 Meg. | ½ | 63-600 | BTS-2.2 Meg. | Red-Red-Grn. " " |
| 61 | 22KΩ | ½ | 63-591 | BTS-22K | Red-Red-Or. Conv. Screen |
| 62 | 1500Ω | ½ | 63-245 | BTS-1500 | Br.-Grn.-Red Filament String |
| 63 | 2.2 Meg. | ½ | 63-600 | BTS-2.2 Meg. | Red-Red-Grn. IF Grid |
| 64 | 1000Ω | ½ | 63-583 | BTS-1000 | Br.-Blk.-Red IF Plate Decoup. |
| 65 | 4.7 Meg. | ½ | 63-602 | BTS-4.7 Meg. | Yl.-Vi.-Grn. AVC Network |
| 66 | 2.2 Meg. | ½ | 63-600 | BTS-2.2 Meg. | Red-Red-Grn. Diode Load |
| 67 | 33KΩ | ½ | 63-592 | BTS-33K | Or.-Or.-Or. Tone Comp. |
| 68 | 15 Meg. | ½ | 63-1093 | BTS-15 Meg. | Br.-Grn.-Blue AF Grid |
| 69 | 4.7 Meg. | ½ | 63-602 | BTS-4.7 Meg. | Yl.-Vi.-Grn. AF Screen |
| 70 | 1 Meg. | ½ | 63-271 | BTS-1 Meg. | Br.-Blk.-Grn. AF Plate Load |
| 71 | 1 Meg. | ½ | 63-271 | BTS-1 Meg. | Br.-Blk.-Grn. Phase Inv. Grid |
| 72 | 1 Meg. | ½ | 63-1042 | BTS-1 Meg. | Br.-Blk.-Grn. Phase Inv. Plate Load |
| 73 | 1 Meg. | ½ | 63-271 | BTS-1 Meg. | Br.-Blk.-Grn. Output Grid |
| 74 | 1 Meg. | ½ | 63-1042 | BTS-1 Meg. | Br.-Blk.-Grn. " " |
| 75 | 120KΩ | ½ | 63-771 | BTS-120K | Br.-Red-Yl. " " |
| 76 | 1500Ω | ½ | 63-245 | BTS-1500 | Br.-Grn.-Red Filament String |
| 77 | 1000Ω | ½ | 63-238 | BTS-1000 | Br.-Blk.-Red " " |
| 78A | 970Ω | 10 | 63-1343 | ABA-1000 | Filament Dropping-See Note |
| B | 970Ω | 10 | | ABA-1000 | " " " " |
| 79 | 1200Ω | ½ | 63-1226 | BTS-1200 | Br.-Red-Red Filter |
| 80 | 56Ω | 2 | 63-1567 | BW-2-56 | Grn.-Blue-Blk. Surge Limiter |

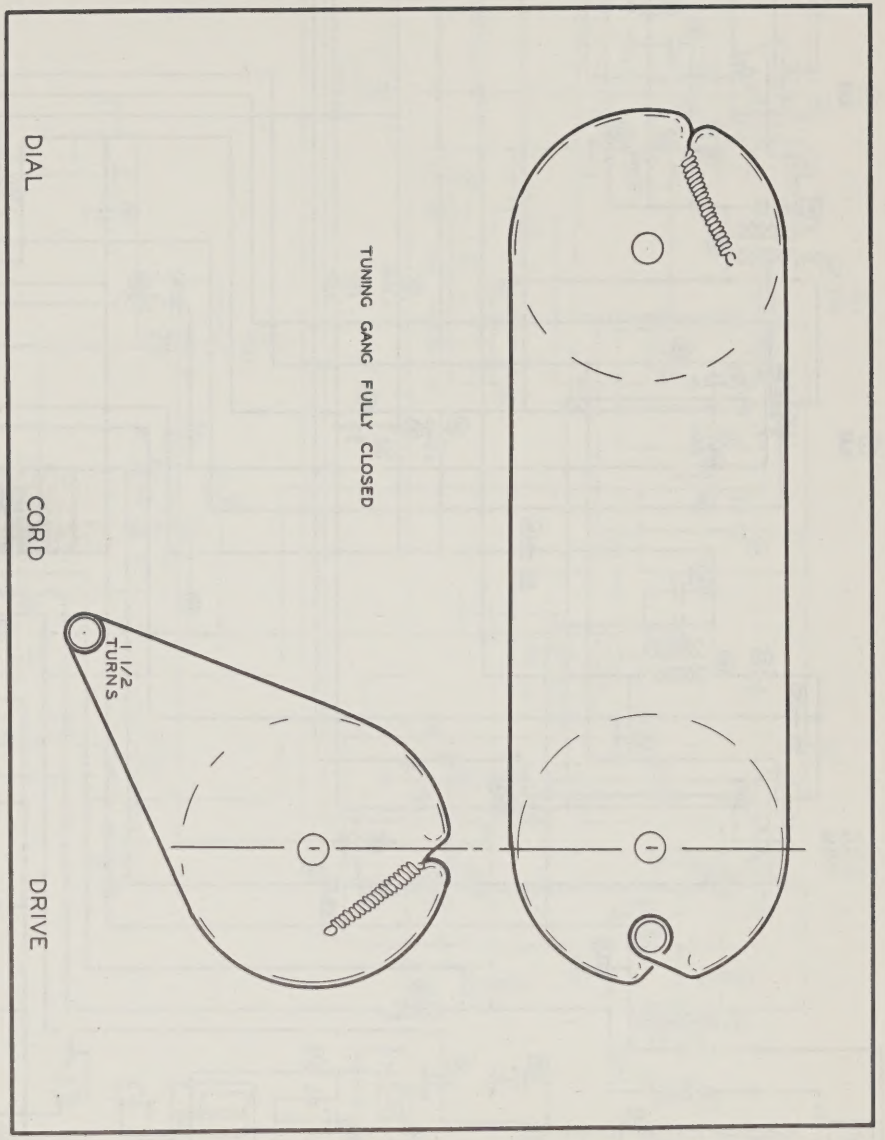
Note-On IRC replacement set slider 970Ω from end.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | ZENITH PART No. | STANCOR PART No. | THORDAR'N PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 81 | 14KΩ CT | 3.6Ω | 870Ω CT | .3Ω | 206-517 | A-3823# | T22887# | A-2901# | #Bend mounting tabs down, file out slots and mount on original brackets. |

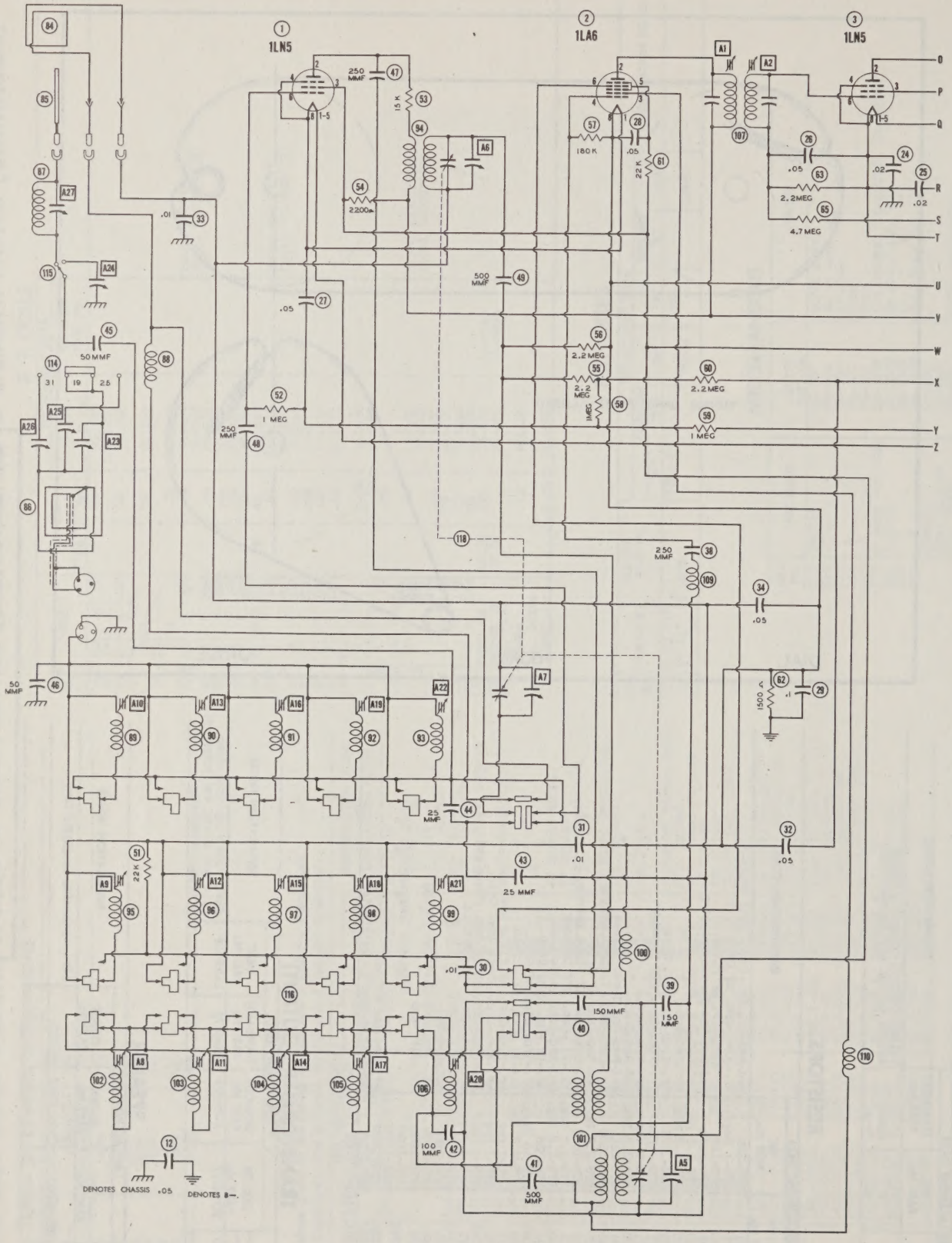
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | ZENITH PART No. | JENSEN PART No. | QUAM PART No. | |
| 82 | FIELD | VC IMP. | 49-517 | ST-107† Mod. P5-V | 52A21 | †Drill and tap magnet frame. |
| | PM | 3.6Ω | | | | |
| 83 | CONE DIA. | VC DIA. | | | | |
| | 5-1/8" | 3/4" | | | | |




DATE 1/49-#491-27 SET #53-FOLDER #27

ZENITH MODELS 8G005YT(Z1), Ch. 8C40T(Z1); 8G005YT(Z2), Ch. 8C40T(Z2), BATTERY-LINE OPERATED




The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting across volume control.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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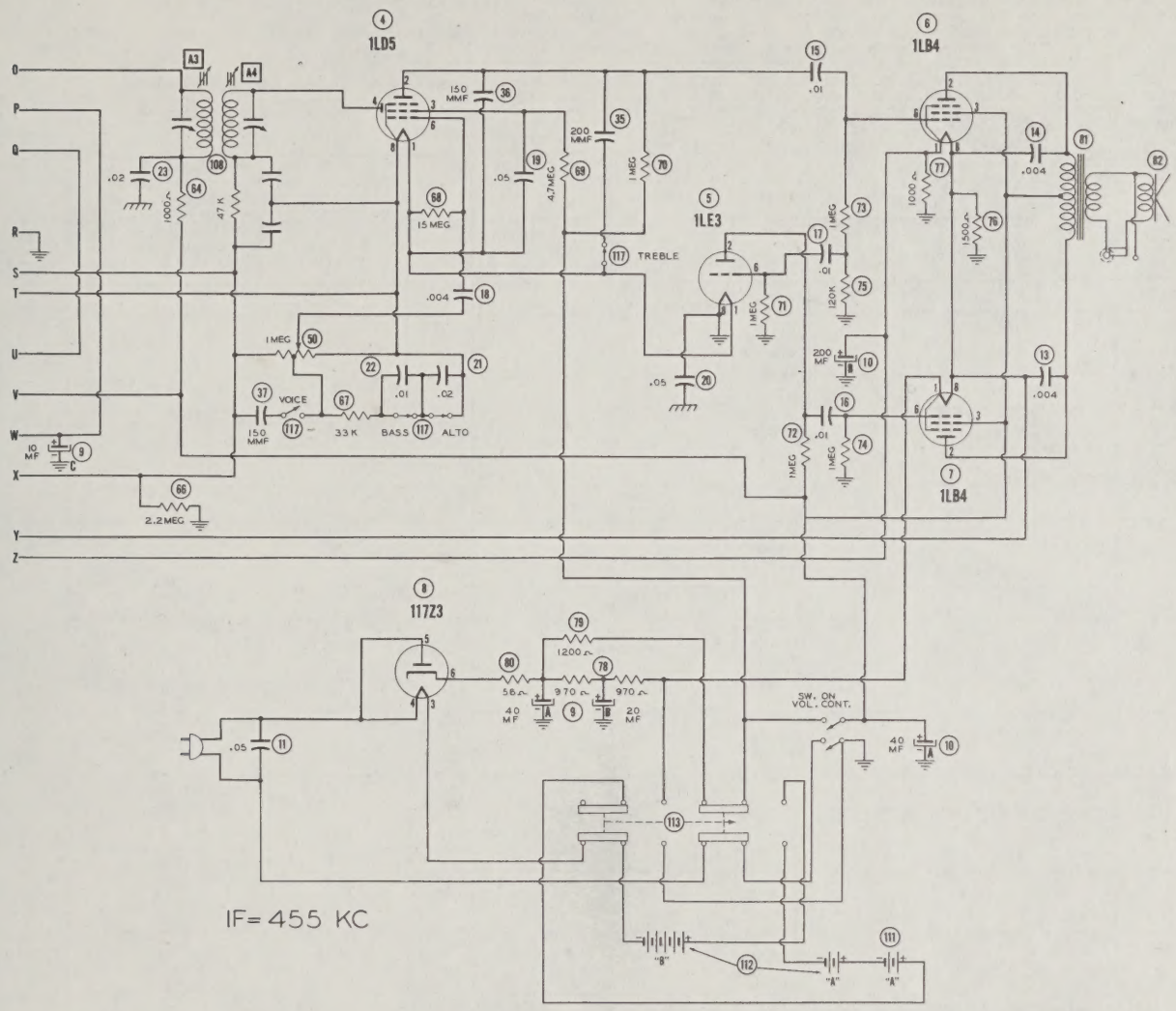


VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1LN5 | 7.4VDC | 73VDC | 83VDC | 6.1VDC | 6.1VDC | .5VDC | 0V. | 6.1VDC |
| 2 | 1LA6 | 6.1VDC | 90VDC | 83VDC | -6.5VDC§ | 55VDC | .6VDC | 4.4VDC | 4.4VDC |
| 3 | 1LN5 | 4.4VDC | 87VDC | 83VDC | 3.1VDC | 3.1VDC | 0V. | 0V. | 3.1VDC |
| 4 | 1LD5 | 1.3VDC | 21VDC | 14VDC | .6VDC | 0V. | 0V. | 0V. | 3.1VDC |
| 5 | 1LE3 | 1.3VDC | 14VDC | 0V. | 0V. | 0V. | 0V. | 0V. | 0V. |
| 6 | 1LB4 | 9VDC | 87VDC | 90VDC | 0V. | 1VDC | 0V. | 0V. | 7.4VDC |
| 7 | 1LB4 | 10.5VDC | 87VDC | 90VDC | 0V. | 0V. | .2VDC | 0V. | 9VDC |
| 8 | 117Z3 | 0V. | 0V. | 0V. | 117VAC | 117VAC | 115VDC | 0V. | - |

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1LN5 | * | 17KΩ | 5KΩ | * | * | 2 Meg. | INF. | * |
| 2 | 1LA6 | * | 3KΩ | 5KΩ | 180KΩ | 25KΩ | 1.2 Meg. | * | * |
| 3 | 1LN5 | * | 4KΩ | 5KΩ | * | * | 1.5 Meg. | INF. | * |
| 4 | 1LD5 | * | 1 Meg. | 4.7 Meg. | 650KΩ | INF. | 15 Meg. | INF. | * |
| 5 | 1LE3 | * | 1 Meg. | 120KΩ | 1.1 Meg. | INF. | 1 Meg. | INF. | 0Ω |
| 6 | 1LB4 | * | 3KΩ | 3KΩ | INF. | 1.1 Meg. | 1.1 Meg. | INF. | * |
| 7 | 1LB4 | * | 3KΩ | 3KΩ | INF. | INF. | 1.2 Meg. | INF. | * |
| 8 | 117Z3 | INF. | INF. | 0Ω | 450Ω | 450Ω | 2KΩ | INF. | - |

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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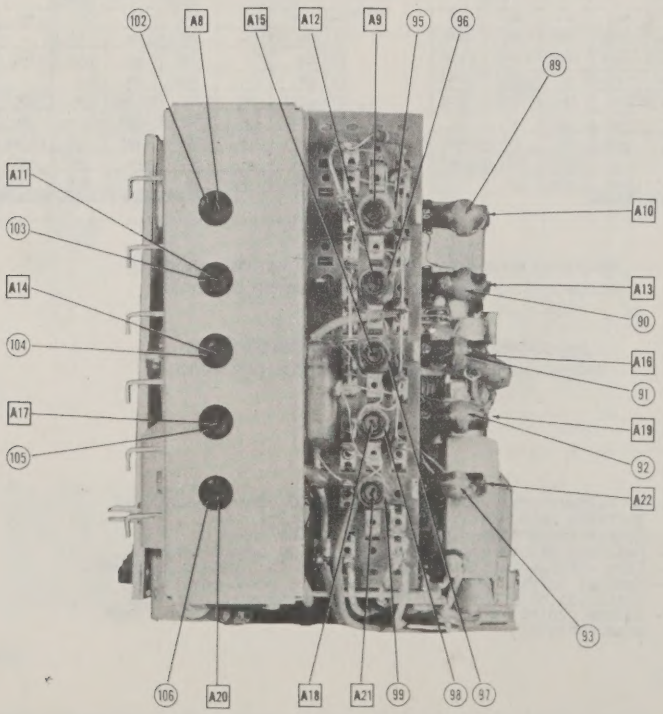
To set dial pointer turn tuning cap. fully open and set pointer to "0" mark on logging scale.
Before attempting alignment, set the chassis over a metal plate approximately the same distance from the bottom of the chassis as the battery pack is when the receiver is in the cabinet.
Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | .1 MFD. | High side to Pin 6 (grid) of 1LA6. Low side to B-. | 455KC | BC button depressed | Tuning cap. fully closed | Across voice coil. | A1,A2, A3,A4 | Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MMFD to reduce hum modulation. |
| 2 | | Loop | 1600KC | " | 1600KC | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output. |
| 3 | | " | 1400KC | " | Tune for maximum output. | " | A6,A7 | Adjust for maximum output. |
| 4 | | " | 6.1MC | 49 meter button depressed | 6.1MC | " | A8 | " " " " |
| 5 | | " | " | " | Tune for maximum output. | " | A9,A10 | Rock tuning cap. and adjust for maximum output. |
| 6 | | Connect output of sig. gen. to 3 feet of wire and place wire approximately 1 foot from extended wave rod. | 9.6MC | 31 meter button depressed | 9.6MC | " | A11 | Adjust for maximum output. |
| 7 | | " | " | " | Tune for maximum output. | " | A12, A13 | Rock tuning cap. and adjust for maximum output. |
| 8 | | " | 11.8MC | 25 meter button depressed | 11.8MC | " | A14 | Adjust for maximum output. |
| 9 | | " | " | " | Tune for maximum output. | " | A15,A16 | Rock tuning cap. and adjust for maximum output. |
| 10 | | " | 15.2MC | 19 Meter button depressed | 15.2MC | " | A17 | Adjust for maximum output. |
| 11 | | " | " | " | Tune for maximum output. | " | A18,A19 | Rock tuning cap. and adjust for maximum output. |
| 12 | | " | 17.8MC | 16 meter button depressed | 17.8MC | " | A20 | Adjust for maximum output. |
| 13 | | " | " | " | Tune for maximum output. | " | A21, A22 | Rock tuning cap. and adjust for maximum output. |
| 14 | | Loop (Wave rod collapsed) | 15.2MC | 19 Meter button depressed | " | " | A23, A24 | Fashion loop of several turns of wire and radiate signal into short-wave loop of receiver. Adjust A23 & A24 for maximum output. |
| 15 | | " | 11.8MC | 25 meter button depressed | " | " | A25 | Adjust for maximum output. |
| 16 | | " | 9.6MC | 31 meter button depressed | " | " | A26 | " " " " |

If FM interference is encountered on any of the short wave bands adjust A27 for minimum interference.
When reinstalling the chassis in the cabinet be careful not to distrub the cabling between the short wave coil assembly and chassis. Tune in a weak station near 1400KC and adjust A7 for maximum output.